

INVESTIGATION OF THE
WASTE MANAGEMENT PRACTICES
OF RETAIL MOTOR VEHICLE
SERVICE STATIONS IN ONTARIO

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INVESTIGATION OF THE WASTE MANAGEMENT PRACTICES OF
RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO

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Waste Management Branch
Ontario Ministry of the Environment

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1.0 INTRODUCTION

1.1 Background

The Ontario Regulation 309 was amended in 1985 to provide the Ministry of the Environment (MOE) with added control over the management of hazardous and liquid industrial wastes in the Province of Ontario. This amendment, officially designated as Regulation 309, represents "cradle to grave" legislation where the waste generator is responsible for the waste material from its conception to its ultimate disposal in an environmentally approved manner. Under Regulation 309, the waste generator is required to identify the type and quantity of hazardous or liquid industrial waste and to register these wastes with the MOE. The waste haulers and waste receivers must be registered with and approved by the MOE. Certain waste materials are excluded under Section 1(57) of Regulation 309. Included in the exemptions are "waste from the servicing of motor vehicles at a retail motor vehicle service station or a service facility that has a written agreement for the collection and management of such waste with a waste management system approved under Part V for the purposes" (Ont. Reg. 309, 1985). The intent of Section 1(57) was to exempt only automobile service stations; however, the present interpretation has come to include other vehicle servicing facilities such as auto body paint shops and marine and aircraft servicing facilities.

The Ontario Ministry of the Environment, through the Waste Management Branch, retained CANVIRO Consultants to identify the effect of the broader interpretation to which the exemption has been applied. CANVIRO's work involved the development of estimates of waste quantities and the assessment of the disposal methods for the various wastes produced annually by service stations in Ontario. This included an evaluation of the possible environmental impacts associated with these wastes and their disposal. The findings of this study are intended to contribute to the development of the MOE's policies regarding wastes from retail motor vehicle service stations. The project objectives are outlined in section 1.2.

1.2 Project Objectives

The central objective of this study was to establish the types and quantities of waste being generated by motor vehicle service stations in Ontario. This objective was achieved by first developing an inventory of service stations in the province. This inventory was used as the basis for

a survey to identify present waste handling practices as well as waste haulers and waste receivers presently servicing this sector of the market. Specific objectives of this study were:

- a) To identify the types of retail service stations (ie. auto body shops, marine service stations, gasoline stations, etc.) which are presently exempted by Regulation 309 and to estimate the total number of establishments within each retail division.
- b) To conduct a survey of a representative number of the various types of retail service stations throughout Ontario to adequately identify the nature of the waste generated, the quantities of waste generated and the existing disposal practices.
- c) To estimate the waste quantities generated on a province-wide scale through extrapolation of the survey results.
- d) To estimate the possible environmental impact of the waste management practices identified during the survey.
- e) To identify the major haulers involved in the management of waste from retail service stations (ie. pick-up and transportation).
- f) To identify the major receiver services involved in the management (ie. bulking, blending, processing and disposal practices) of waste from retail service stations.
- g) To prepare a final report summarizing the results of the study for the Ontario Ministry of the Environment.

The remainder of this report (Chapters 2 to 5) summarizes the survey methodology, analysis of the survey responses and extrapolation of the waste quantities. Conclusions and recommendations are presented in Chapters 6 and 7, respectively.

2.0 SURVEY PROCEDURES

2.1 General Approach

The procedure for the survey of retail motor vehicle service stations in Ontario is outlined in Figure 2.1 and summarized below.

- 1) Selection of a Representative Sample
- 2) Collection of Data
- 3) Analysis of Survey Data
- 4) Extrapolation of Waste Data

The specific components of the sample selection and data collection components of this survey are discussed in the remainder of this chapter.

2.2 Selection of a Representative Sample

2.2.1 Establishment of the Total Number of Retail Motor Vehicle Service Stations in Ontario

The first step in the survey was to establish the total number of service stations in Ontario. Two service stations listings were reviewed in the proposal stage of this project. Table 2.1 summarizes the Dunn & Bradstreet listing and Table 2.2 summarizes the R.L. Polk listing. In both data bases, it was possible for one establishment to appear in more than one service station type (ie. a Canadian Tire outlet would have a gas bar, lube shop, transmission shop, etc. and would be counted once in each of these categories).

The R.L. Polk profile was chosen as the 'Master List' for this survey, since it was perceived to have a more complete listing of retail motor vehicle service stations. The Polk listing consisted of an 1100 page computer printout (see example page in Appendix A). The listing was sorted by postal code, beginning with postal code region 'K', through to region 'P' (K, L, M, N and P represent the first character of all postal code districts in Ontario). The Polk listing included the service station name, address, phone number, postal code and one or more U.S. Standard Industrial Code(s) (SICs) identifying the type of station. The approximate number of SIC counts in Ontario is summarized in Table 2.3 for each SIC category as provided by Polk in their listing. It should be noted that these numbers include the overlaps generated from, for example, a Canadian Tire outlet being

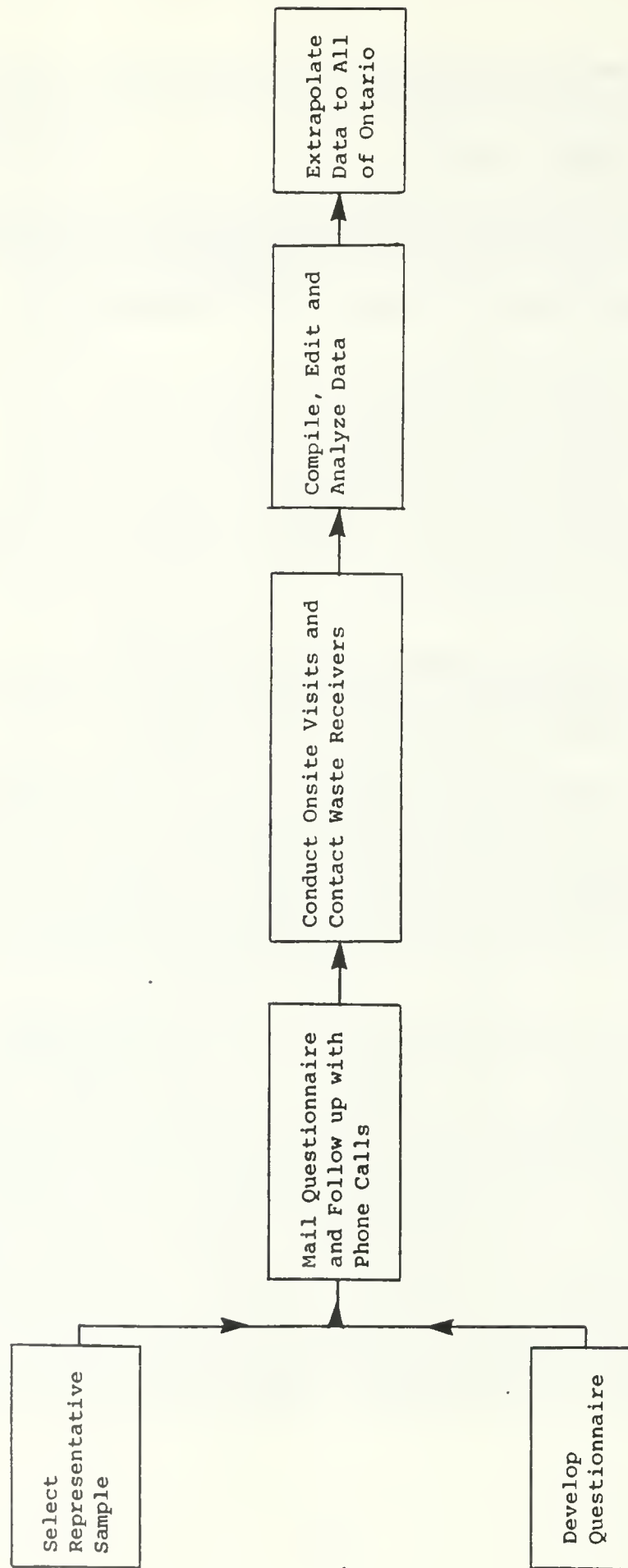


FIGURE 2.1. Flow Chart of Procedure for Survey of Retail Motor Vehicle Service Stations in Ontario

Table 2.1
 PROFILE OF RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO
 (Dunn and Bradstreet, 1986)

<u>Type of Retail Motor Vehicle Service Station</u>	<u>Number of Establishments</u>
1) Single Independent Gas Service Stations and Small/ Large Corporate Service Stations (eg. Petro-Canada, Shell, etc.)	3,351
2) "Lube Stop" (oil change and lubrication stations); Radiator Sales/Service Stations and Undercoating Retail/Service Stations (rustproofing and oil coating).	916
3) Auto Home Supply Stores (eg. Canadian Tire) in- cluding Battery Sales/Service Stations.	780
4) Transmission Sales/Service Stations	306
5) Auto Body Repair and Paint Shops	1,590
6) New/Used Car Dealerships	2,032
7) Motorcycle Dealer/Service Stations	214
8) All Terrain Dealer/Service Stations including snowmobiles, "dirt bikes", amphibians	166
9) Marine Motor Dealer/Service Stations	389
10) Airplane/Hydroplane/Helicopter Dealer/Service Stations	233
11) Construction Motor Equipment Service Operations	2,320
12) Motor Vehicle Rental/Service Stations	760
13) Retail Car Wash Stations	196
TOTAL	13,253

Table 2.2
 PROFILE OF RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO
 (R.L. Polk, 1986)

<u>Type of Retail Motor Vehicle Service Station</u>	<u>Number of Establishments</u>
1) Small/Large Corporate Service Stations - Gulf	397
- Shell	705
- Sunoco	503
- Texaco	497
- Ultramar	20
- Petro-Canada	327
	<u>2,449</u>
2) Other Single Independent Gas Service Stations (including outlets not listed above).	3,129
3) Battery Sales/Service Stations	204
4) Radiator Sales/Service Stations	649
5) Transmission Sales/Service Stations	732
6) Auto Body Repair & Paint Shop	3,228
7) New/Used Car Dealerships	4,059
8) Motorcycle Dealer/Service Stations (includes "dirt bikes")	366
9) All Terrain Dealer/Service Stations (snowmobiles, amphibians)	480
10) Marine Motor Dealer/Service Stations	548
11) Plane/Hydroplane/Helicopter Dealer/Service Stations	320
12) Motor Vehicle Rental & Leasing/Service Stations	2,096
13) Undercoating & Rustproofing Retail/Service Stations	267
14) Retail Car Wash & Polishing Stations	795
15) "Lube Stop" (oil change & lubrication stations)	<u>5,578</u>
 TOTAL	 24,900

Note: No establishments were identified in the construction
 motor equipment service operations category.

Table 2.3
INVENTORY OF RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO
(R.L. Polk, 1987)

<u>Type of Retail Motor Vehicle Service Station</u>	<u>Standard Industrial Code (SIC)</u>	<u>Approximate SIC Counts for Ontario</u>
Car Washing & Polishing	7542	825
Radiators Automotive	7539	655
Automobile Repairing & Service	7538	9,100
Transmission Automotive	7536	735
Automobile Repairing & Painting	7535	3,250
Automobile Renting & Leasing	7512	2,175
Batteries Storage Retail	5926	215
Motorcycle Dealers	5571	390
Snowmobiles	5559	485
Service Stations Gasoline	5541	5,585
Automobile Dealers Used	5521	2,825
Automobile Dealers New	5511	1,385
Helicopter Dealers	4512 - HELI	25
Marine Motor Dealers	4469	545
Automobile Customizing	3713 - AUTO	110
Engines Rebuilding & Exchanging	3594	215
		<u>28,520</u>

Note: Each service station may appear in one or more SIC categories.

outlet being listed with more than one SIC. The total number of establishments listed by Polk was 17,590, exclusive of any duplication. This total is somewhat less than the total count of 28,520 (Table 2.3) reflecting that some service stations have more than one SIC (see Appendix A for Example of Polk printout).

2.2.2 Selection of the Establishments to Sample

Initially it was proposed to sample 250 establishments by mail and follow-up the mailed questionnaires with telephone interviews. However, based on CANVIRO's previous survey experiences, it was decided to increase the number of mailouts by approximately one third to ensure a minimum of 250 establishments would be available for waste data extrapolation. A total of 344 retail motor vehicle service stations were initially contacted by mail.

The methodology adopted in developing the mailing list for the questionnaire was to proportion the mailing list by SIC code. The mailing list distribution was derived based on the number of establishments in a given SIC category relative to the total count for the province. The list was further modified to ensure that a minimum of five businesses were contacted in each SIC category.

The mailing list was proportioned to achieve a representative geographic coverage. The province was divided based on postal code regions of which there are five (K, L, M, N, and P) as shown in Figure 2.2. The approximate geographic distribution of service stations was estimated from the number of pages for each postal code district in the Polk database. The resulting geographic distribution is shown in Table 2.4.

Table 2.4
DISTRIBUTION OF SERVICE STATIONS IN ONTARIO
BY POSTAL CODE REGION

<u>Postal Code Region</u>	<u>Percent (%) (R.L. Polk)</u>	<u>Percent (%) (as mailed)</u>
K	17	17
L	29	28
M	18	19
N	24	23
P	12	13

The mailing list was modified to account for geographic distribution by distributing the number of establishments allocated for each SIC by the percentages shown in Table 2.5. The resulting distribution by SIC category and postal code district is shown in Table 2.5.

If a service station had more than one SIC, the first SIC listed was used. Throughout the database, the first SIC generally reflected the most appropriate SIC to describe the nature of the business for that service station. This was confirmed by comparing the first SIC to the company name, (ie. for a first SIC 7535, a company name of "Joe's Auto Body and Painting" would confirm the accuracy of the SIC). This was generally true for the majority of the database. For the purposes of this project the first SIC was called the Primary Standard Industrial Code (PSIC). This was used to characterize the service station type and to proportion wastes

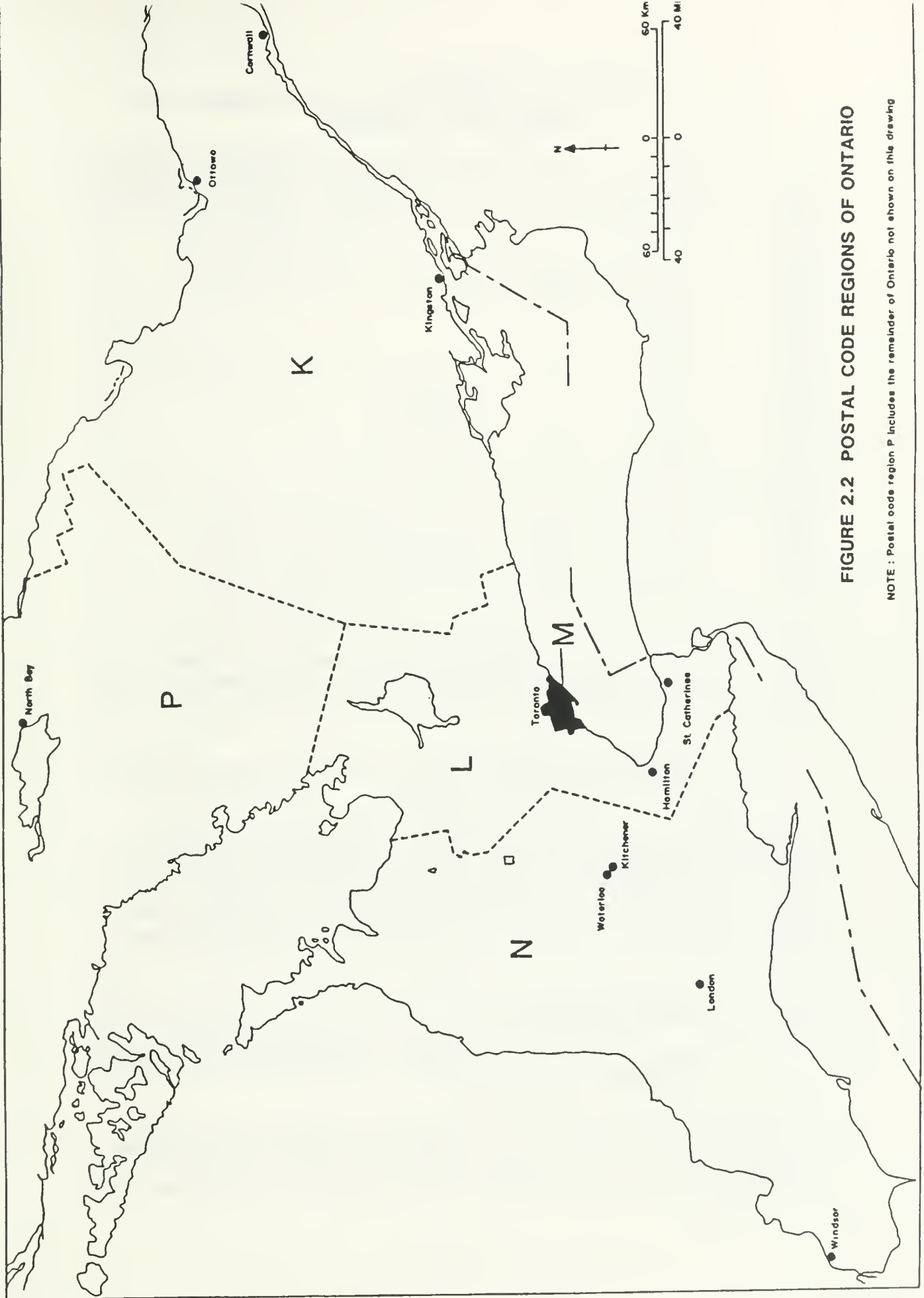


FIGURE 2.2 POSTAL CODE REGIONS OF ONTARIO

NOTE : Postal code region P includes the remainder of Ontario not shown on this drawing

Table 2.5
DISTRIBUTION OF MAILED QUESTIONNAIRES BY SERVICE STATION TYPE
AND GEOGRAPHIC LOCATION

SIC Code	Approx. Ont. Counts from R.L. Polk	Area Code Breakdown for Geographic Distribution					Total
		<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>P</u>	
7542	825	1	3	2	2	1	9
7539	655	1	2	2	2	1	8
7538	9,100	18	30	19	24	13	104
7536	735	2	2	2	2	1	9
7535	3,250	6	11	7	9	5	38
7512	2,175	4	7	5	6	3	25
5926	215	1	1	1	1	1	5
5571	390	1	1	1	1	1	5
5559	485	1	2	1	1	1	6
5541	5,585	11	19	12	15	8	65
5521	2,825	5	10	6	8	4	33
5511	1,385	2	5	3	4	2	16
4512	25	1	1	1	1	1	5
4469	545	1	2	1	1	1	6
3713	110	1	1	1	1	1	5
3594	215	1	1	1	1	1	5
Total	28,520	57	98	65	79	45	344

throughout the analysis of the survey data. The number of service stations contacted per SIC and per region was based on the proportions from the approximate Ontario counts per SIC (from Polk) and the postal code distribution (Table 2.4).

2.2.3 Random Selection of Retail Motor Vehicle Service Stations to be Contacted

Given the questionnaire distribution from Table 2.4, the businesses contacted within a postal code region were also selected to achieve a representative geographic coverage (given that adequate questionnaires were allocated). The actual businesses contacted were selected at random from those meeting the geographic distribution and SIC category criteria.

2.3 Data Collection

2.3.1 Questionnaire Development, Mailing and Follow-Up Telephone Interviews

The covering letter and questionnaire used for this study were developed jointly by the MOE and CANVIRO Consultants. A summary of the questionnaire is outlined in Table 2.6 and a sample questionnaire and covering letter are included in Appendix B.

Table 2.6
SUMMARY OF INFORMATION CATEGORIES INCLUDED
IN SURVEY QUESTIONNAIRE

A. Basic Statistics on Company

- name, address, phone number, postal code
- contact person(s)
- nature of business
- numbers of full-time and part-time employees

B. Fuel Sales

- % of fuel sales of
 - unleaded
 - leaded
 - diesel
 - propane

C. Waste Types and Quantities Produced/Stored with Disposal Method

- waste oil from oil changes and/or minor amounts of transmission fluid
- oil/sludge from interceptors (oil/water separator)
- water from underground gasoline storage tanks
- coolant from radiators
- used batteries
- paint sludge/paint overspray/spray booth filters
- cleaners, thinners, solvents
- degreasing agents
- other

D. General Questions

- problems disposing of wastes
- written agreements with waste haulers and their addresses
- comments, suggestions regarding waste disposal

Note: See Appendix B for example covering letter and completed questionnaires

Table 2.7 summarizes the waste types and descriptions adopted for the questionnaire. These waste types are defined in this table and assigned a waste type number which is referred to throughout this study.

Table 2.7
WASTE TYPE CATEGORIES

<u>Number</u>	<u>Description</u>
1	Waste Oils
2	Interceptor Wastes (Waste Oil/Sludge/Water)
3	Gasoline Storage Tank Bottoms
4	Coolant
5	Batteries
6	Paint Sludge/Filters
7	Non-Halogenated Cleaners, Thinners and Solvents
8	Caustic
9	Halogenated Cleaners

The questionnaire was mailed to 344 service stations in total as discussed previously. Of these questionnaires mailed, only 17 percent responded with complete questionnaires. Postal code region 'N' responded with the highest completion rate of 23 percent and postal code region 'P' responded with the lowest completion rate of 11 percent. A summary of the questionnaires returned by mail is provided in Table 2.8.

It should be noted that 46 questionnaires were returned due to incorrect addresses or because the company was no longer in business or had moved (Table 2.8). This amounts to 13.37% of the questionnaires mailed out and was much higher than expected. However, a suitable number of completed questionnaires were achieved through telephone interviews despite this apparent deficiency in the Polk database.

The targetted breakdown of service stations for contact subsequent to the mailout is listed in Table 2.9. Follow-up interviews were conducted by telephone to obtain missing information for incomplete questionnaires returned by mail. Businesses not responding by mail were contacted by telephone as well and questionnaires were completed by CANVIRO staff during the interview. Any uncooperative or unavailable businesses were replaced by a similar service station (equivalent SIC category) from the same region.

The final distribution of completed questionnaires at the conclusion of the survey is documented in Table 2.10. It should be noted that this table includes the questionnaires completed during onsite interviews which are described in Section 2.3.3. A total of 292 completed questionnaires was obtained which exceeds the number proposed by 14 once the 28 onsite interviews are accounted for.

Table 2.8
QUESTIONNAIRE RESPONSE

Region	Responded With Completed Questionnaire	Questionnaire Returned Incomplete	No Response		Total Sent	% Completed Replies
			Moved or Out of Business	Incorrect Address (from Polk)		
K	12	2	3	1	57	21
L	17	1	6	4	98	17
M	8	0	9	4	65	12
N	18	1	9	4	79	23
P	<u>5</u>	<u>0</u>	<u>5</u>	<u>1</u>	<u>45</u>	<u>11</u>
Total	60	4	32	14	344	17

Table 2.9
TARGETTED NUMBER OF SERVICE STATIONS FOR FOLLOW-UP
TELEPHONE INTERVIEWS

SIC Code	Geographic Distribution by Postal Code					Total
	K	L	M	N	P	
7542	1	2	1	2	1	7
7539	1	2	1	1	1	6
7538	14	23	14	19	10	80
7536	1	2	1	1	1	6
7535	5	8	5	7	4	29
7512	3	6	3	5	2	19
5926	1	1	1	1	1	5
5571	1	1	1	1	1	5
5559	1	1	1	1	1	5
5541	8	14	9	12	6	49
5521	4	7	5	6	3	25
5511	2	4	2	3	1	12
4512	1	1	1	1	1	5
4469	1	1	1	1	1	5
3713	1	1	1	1	1	5
3594	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>5</u>
TOTAL	46	75	48	63	36	268

Table 2.10
FINAL DISTRIBUTION OF COMPLETED QUESTIONNAIRES

SIC	Area Code Region					Totals
	K	L	M	N*	P	
7542	1	2	1	4	1	9
7539	1	2	1	3	1	8
7538	14	23	14	21	10	82
7536	1	2	1	3	1	8
7535	5	7	5	9	4	30
7512	2	5	3	7	2	19
5926	1	1	1	2	1	6
5571	1	1	1	2	1	6
5559	1	2	1	2	1	7
5541	8	14	9	14	6	51
5521	4	7	5	8	3	27
5511	2	4	2	5	1	14
4512	0	1	1	1	1	4
4469	1	1	1	3	1	7
3713	1	1	1	3	1	7
3594	1	1	1	3	1	7
Totals	44	74	48	90	36	292

* Note: Table includes establishments where onsite interviews were performed.

2.3.2 Data Management

The Lotus 1-2-3 computer software package was used for management of data obtained during this survey. Three separate spreadsheet files were used to compile the data obtained from the survey questionnaire. These are:

- i) Basic company information
- ii) Waste management information
- iii) Waste hauler information

The information contained in each of the three files is outlined in Table 2.11.

Table 2.11
INFORMATION CONTAINED IN SPREADSHEET FILES

A. BASIC COMPANY INFORMATION

- company number (arbitrarily assigned during compilation of data)
- page number from R.L. Polk printout
- SIC
- name, address, city, province, postal code, phone number
- questionnaire response code
- fuel sales breakdown
- number of employees : full-time and part-time
- other SIC numbers per Polk printout
- telephone response code
- number of phone calls made
- waste hauler information, agreement, problems
- contact person

B. WASTE MANAGEMENT INFORMATION

- company number (arbitrarily assigned during compilation of data)
- page number from R.L. Polk listing
- SIC
- waste identification number
- quantity reported
- units
- disposal method
- quantity stored
- units
- brand name of solvents, cleaners, etc.
- nature of business
- waste hauler information provided

C. WASTE HAULER INFORMATION

- waste hauler name, address, city, postal code, telephone number
- waste type(s) hauled

Note: See Appendix D to F for example listings and descriptions of data coding system.

Data from completed questionnaires received by mail, telephone interview or onsite visits were entered to the spreadsheet files. Any necessary replacements were also added to the survey database. The Basic Company Information File referenced in Table 2.11 included all businesses contacted and all businesses that we attempted to contact. All data were entered into a data sheet before being added to the appropriate computer spreadsheet file(s). Data files were stringently checked to ensure that any omissions and/or errors were eliminated.

Each of the three spreadsheet files are enclosed for reference in Appendices D to F for Basic Company Information, Waste Management Information and Waste Hauler Information, respectively. Floppy disks containing the data files have been forwarded under separate cover.

2.3.3 Onsite Interviews

A total of 28 service stations were visited to:

- i) Verify the data collected by mailed questionnaires and telephone interviews.
- ii) Identify typical waste management practices.
- iii) Identify any other concerns or problems of a waste management nature which were not identified during the survey.

The distribution of onsite interviews by SIC is outlined in Table 2.12. Of these, only one of the locations had been previously contacted by telephone and all others had not been contacted prior to the field visit. All of the service stations selected were chosen at random within the Kitchener-Waterloo area provided that two service stations were visited per SIC, as proposed. It should be noted that no SIC 4512 - Helicopter Dealer/Service was included due to the absence of cooperative/available stations in the immediate Kitchener-Waterloo area. Only one location for SIC 5559 and SIC 5926 was contacted during the onsite visits due also to the lack of available and cooperative service stations (from SIC 5559 and 5926) in the Kitchener-Waterloo area. The outcome of the onsite interviews are summarized in Table 2.13.

In reviewing the results of the survey and the follow-up onsite interviews, it was evident that most service stations kept relatively poor records regarding waste quantities and disposal methods. Most businesses could provide "ball park" estimates of waste quantities, at best. The only exception to this would be waste solvents, principally from parts cleaning machines, that were serviced on a regular basis by registered haulers such as Safety Kleen.

Table 2.12
DISTRIBUTION OF ONSITE INTERVIEWS BY SIC IN THE
KITCHENER-WATERLOO AREA (Postal Code Region 'N')

SIC	Number of Locations Visited
7542	2
7539	2
7538	2
7536	2
7535	2
7512	2
5926	1
5571	2
5559	1
5541	2
5521	2
5511	2
4512	0
4469	2
3713	2
3594	2
Total	28

Some sludges from solvent and caustic tanks were identified as potential waste streams of concern during onsite interviews. These wastes were not addressed in the survey by mail or telephone interview, but are expected to be fairly minimal in quantity forming only a small but undefined percentage of the wastes. Several samples were taken during field visits and are discussed in Section 3.2.4-Waste Classification.

Table 2.13
OUTCOME OF ONSITE INTERVIEWS AT SELECTED
SERVICE STATIONS IN THE KITCHENER-WATERLOO AREA

<u>Waste Type</u>	<u>Waste Management Practices Identified During Field Visit</u>
1. Waste Oils	<ul style="list-style-type: none"> - Relatively good records kept of quantities of waste oil especially if hauled by 'registered' hauler - Confirmed that most waste oil is hauled by 'registered' hauler, as per mailout/telephone survey
2. Interceptor Wastes	<ul style="list-style-type: none"> - Poor records of volumes, either pumped by waste oil hauler or septic cleaning operations
3. Gasoline Storage Tank Bottoms	<ul style="list-style-type: none"> - No quantities reported, similar to mailout telephone survey - Gasoline supplier usually responsible for tank bottoms
4. Coolant	<ul style="list-style-type: none"> - Poor records of volumes of waste coolant, usually discharged to sanitary sewer drain - Sludge disposed of at landfill site
5. Batteries	<ul style="list-style-type: none"> - usually waste battery storage is on-site, and waste batteries are sent to battery reconditioners or scrap dealers
6. Paint Sludge/Filters	<ul style="list-style-type: none"> - No paint sludge and few filters generated - Paint cans and filters disposed of at landfill sites
7. Non-halogenated Cleaners, Thinners and Solvents	<ul style="list-style-type: none"> - Small quantities used, usually recycled or disposed of in waste oil tank - Sludge disposed of at landfill sites
8. Caustic	<ul style="list-style-type: none"> - Applied to radiator shops and engine rebuilding shops, hauled away or neutralized and discharged to sanitary sewer - Sludge disposed of at landfill sites
9. Halogenated Cleaners	<ul style="list-style-type: none"> - Applied to radiator shops, no disposal method given - Sludge disposed of at landfill sites

3.0 ANALYSIS OF SURVEY DATA

Chapter 3.0 represents a summary and discussion of the data collected during the service station survey.

3.1 Basic Survey Statistics

This section outlines the basic statistics characterizing the service stations contacted during the survey. This includes non-waste related information such as number of employees and fuel sales breakdowns. The statistics are presented in order to provide a general view as to the composition of retail service stations throughout the province. For example more heavily populated postal code regions generally exhibit higher mean employee values and could conceivably generate more waste. Similarly, SIC categories with significantly higher mean populations could be reflected in waste quantities generated. However, because of the high variances associated with many of the mean values, their reliability should be judged carefully.

3.1.1 Number of Employees

The number of full time and part time employees per service station was established during the survey. The average number of full time and part time employees for each geographic region are summarized in Table 3.1. Region 'M' had the highest average of full time employees of 7.63 and Region 'P' had the highest average of part time employees at 1.78 per station surveyed. The average number of full time employees per service station surveyed for all of Ontario was 5.15. Part time employees averaged 1.3 per station surveyed for all of Ontario. Variances are also reported for the mean number of employees calculated. Variances are generally high suggesting the broad distribution in the reported means.

Table 3.1
EMPLOYMENT CHARACTERISTICS BY GEOGRAPHIC REGION

<u>Postal Code Region</u>	<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>P</u>	<u>Ontario</u>
<u>Full Time Employees</u>						
Sample Total	44	74	48	90	36	292
Mean	4.39	4.93	7.63	4.11	5.83	5.15
Variance	73.22	78.67	156.32	15.90	99.17	74.09
<u>Part Time Employees</u>						
Sample Total	44	74	48	90	36	292
Mean	0.75	1.38	1.46	1.23	1.78	1.30
Variance	1.35	4.59	3.27	2.50	4.18	3.23

Table 3.2 summarizes employment statistics for all of Ontario for each SIC. The largest full time employer was 'new car stations' (SIC 5511) with an average of 23.64 employees per service station (SIC 5511) surveyed. The lowest full time employer was 'automobile customizing stations' (SIC 3713) with an average of 2.43 employees per station. The largest part time employer was 'helicopter dealers' (SIC 4512) with an average of 6.75 employees and the lowest was 'engine rebuilding stations' (SIC 3594) with an average of .29 part time employees (see Appendix C for regional employment characteristics).

Table 3.2
EMPLOYMENT CHARACTERISTICS BY STANDARD INDUSTRIAL CODE

SIC	Sample Total	Full Time Employees		Part Time Employees	
		Mean	Variance	Mean	Variance
7542	9	5.00	12.25	3.33	8.25
7539	8	5.38	18.27	0.50	0.57
7538	82	2.88	4.11	1.05	2.34
7536	8	6.00	38.29	0.38	0.27
7535	30	5.00	157.03	0.47	0.81
7512	19	7.84	177.92	1.16	1.36
5926	6	4.17	4.97	1.00	2.40
5571	6	8.00	134.40	1.17	2.57
5559	7	6.14	37.81	1.29	0.90
5541	51	2.73	4.28	2.57	2.81
5521	27	5.22	77.26	0.59	0.94
5511	14	23.64	272.25	0.93	1.76
4512	4	9.25	62.25	6.75	32.25
4469	7	2.71	2.90	1.00	0.67
3713	7	2.43	6.62	0.43	0.29
3594	7	4.71	28.24	0.29	0.57

3.1.2 Fuel Sales

Data obtained from the survey regarding fuel sales at each service station is discussed in this section. Each service station was queried as to the percentages of their total fuel sales by fuel type for unleaded, leaded, diesel or propane fuel. For example, one station might sell 60 percent unleaded fuel, 40 percent leaded and 0 percent diesel and propane. The average fuel sales per fuel type, region and for the province are summarized in Table 3.3. The highest mean for unleaded fuel sales was 63.6 percent in region 'L'; for leaded fuel it was 42.6 percent in region 'K'; for diesel fuel it was 12.7 percent for region 'P' for propane fuel the highest mean percentage of sales was 1.6 percent for region 'L'.

Table 3.3
FUEL SALES BREAKDOWN BY POSTAL CODE REGION

Fuel Type	Postal Code Region					Ontario
	K	L	M	N	P	
Number of Observations	14	22	15	25	13	89
Unleaded	49.4	63.6	63.0	56.2	52.1	57.5
Leaded	42.6	33.5	35.7	31.9	35.1	35.1
Diesel	7.8	1.3	0.7	11.7	12.7	6.8
Propane	0.2	1.6	0.6	0.2	0.1	0.1

Notes: i) Fuel Sales breakdown reported as percent.
ii) Percentage fuel sales are mean values for the survey.

There were a total of 89 service stations that sold one or more of the four fuel types. Of the 89 service stations selling fuel, 97 percent sold unleaded fuel, 98 percent sold leaded fuel, 27 percent sold diesel fuel and 9 percent sold propane fuel.

Fuel sales are also evaluated for selected SIC categories to provide an indication of the difference between service station type. Fuel sales between SIC categories which had a relatively large number of fuel vendors (7538 and 5541) indicate that the sales breakdowns are similar. SIC categories 7538 and 5541 sold 60.3% and 59.6% unleaded gasoline and 36.8% and 31.3% leaded gasoline, respectively.

3.2 Waste Management

The results of the survey which are waste related are discussed in Section 3.2.

3.2.1 Waste Quantities Generated

The waste quantities for the survey were based on the responses obtained from the service station owners/managers during the survey. Throughout, it was found that most of the estimates of wastes produced annually were 'rough' estimates. The majority of service stations did not keep accurate records of wastes produced. Quantities for waste oils and solvents seemed to be better documented, mainly because they were hauled or recycled by a 'registered' hauler. Probably the least accurate waste quantities obtained in the survey

were interceptor wastes and the waste coolant from radiators. Most service stations could not even 'guess' a quantity for either of these wastes. No waste quantities were reported by 95 (32.5%) of the 292 establishments who responded in the survey. Of the 95 reporting no waste quantities, 42 were gasoline service stations (SIC 5541).

3.2.1.1 Waste Quantities for Each Standard Industrial Code

All service stations were asked to estimate the quantities of waste produced annually for each of the nine waste types (defined in Table 2.7). These quantities are summarized for each SIC in Table 3.4. All quantities represent the mean waste produced annually from the survey sample for only those businesses reporting to generate waste. Waste quantities were recorded in Imperial gallons, except waste batteries (each) and waste paint/sludge filters (lbs).

Table 3.4
MEAN ANNUAL WASTE QUANTITIES FOR EACH WASTE TYPE

Waste Type		1	2	4	5	6	7	8	9
Units									
SIC	Sample	(Igal)	(Igal)	(Igal)	(each)	(lbs)	(Igal)	(Igal)	(Igal)
7542	6	273	456	0	27	0	3	0	0
7539	8	3	4	482	0	13	0	109	38
7538	78	938	11	47	66	0	45	0	0
7536	8	1780	50	15	12	0	189	0	0
7535	16	200	0	1	32	2	34	0	0
7512	8	392	0	18	25	0	48	0	0
5926	6	108	0	0	790	0	24	0	0
5571	6	306	0	8	33	0	38	0	0
5559	6	522	0	0	83	0	30	0	0
5541	9	253	4	17	23	0	12	0	0
5521	13	781	4	13	32	7	13	0	0
5511	14	3671	44	151	78	14	288	0	0
4512	3	103	0	0	1	0	5	0	0
4469	7	107	0	0	54	0	28	0	0
3713	3	0	0	0	1	1	6	0	0
3594	6	471	0	3	3	0	64	107	0

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Notes: 1. Waste types defined in Table 2.7. SIC codes listed in Table 2.3.

2. Quantities for waste type 3 (tank bottoms) not available from service station owner/operators - see Section 4.2.3 for estimated waste quantities.

New car dealerships (SIC 5511) produced the largest average quantities of waste oils (1), waste paint sludge/filters (6) and non-halogenated waste solvents (7). Radiators shops (SIC 7539) produced the largest average waste quantities of caustic cleaners (8) and halogenated cleaners (9). Generally there were poor responses for waste quantity estimates for interceptor wastes (2), underground gasoline storage tank bottoms (3) and waste paint sludge/filters (6). It should be noted that waste quantities for underground gasoline storage tank bottoms were generally not available from service station operators as these wastes are usually collected by the gasoline suppliers or did not exist. Estimated waste quantities obtained from the Ontario Petroleum Association are discussed in Section 4.2.3. There were very few quantities reported for waste caustic cleaners (8) and halogenated cleaners (9) largely due to the fact that these waste types were only reported by radiator shops (SIC 7539) and engine rebuilding shops (SIC 3594) for which only 8 and 7 service stations were contacted, respectively.

3.2.1.2 Waste Quantities for Each Geographic Region

The mean annual waste quantities produced by geographic region are summarized in Table 3.5. The mean annual waste quantities were derived based on the total amount of each waste generated divided by the number of establishments reporting waste quantities for each waste type within a specific postal code region. In reviewing Table 3.5, it is evident that the larger mean waste quantities tend to be from the heavier populated regions 'L', 'M', and 'N'.

Table 3.5
MEAN ANNUAL WASTE QUANTITIES IN EACH POSTAL CODE REGION
EACH POSTAL CODE REGION

		<u>Postal Code Region</u>									
		K		L		M		N		P	
Waste Types	Units	Sample Number	Waste Quantity	Sample Number	Waste Quantity	Sample Number	Waste Quantity	Sample Number	Waste Quantity	Sample Number	Waste Quantity
1	Igal	24	720	41	1162	26	2519	53	1040	26	675
2	Igal	2	10	4	675	3	333	6	358	1	500
3	Igal	0	0	0	0	0	0	0	0	1	22
4	Igal	10	73	16	222	13	125	17	289	6	132
5	each	23	196	36	95	23	138	42	89	22	63
6	lbs	1	50	1	200	1	100	3	74	1	10
7	Igal	20	66	35	150	18	115	36	82	21	91
8	Igal	0	0	1	100	0	300	3	240	2	400
9	Igal	0	0	0	0	0	0	1	300	0	0

3.2.2 Waste Quantities Stored

All waste generating service stations were asked the quantities of wastes they stored onsite. The mean quantities of wastes stored are summarized by waste type and SIC for the province in Table 3.6.

Table 3.6
MEAN WASTE QUANTITIES STORED FOR EACH WASTE TYPE

<u>Waste</u>	<u>Type</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<u>Units</u>	<u> </u>	<u>Igal</u>	<u>Igal</u>	<u>Igal</u>	<u>Igal</u>	<u>each</u>	<u>lbs</u>	<u>Igal</u>	<u>Igal</u>	<u>Igal</u>
SIC	7542	230	1025	*	*	50	*	4	*	*
	7539	20	*	31	*	*	0	*	204	300
	7538	322	350	*	16	25	*	12	*	*
	7536	357	400	*	0	2	*	45	*	*
	7535	300	*	*	0	40	3	8	*	*
	7512	293	*	*	50	32	*	30	*	*
	5926	350	*	*	*	31	*	21	*	*
	5571	180	*	*	8	18	*	15	*	*
	5559	130	*	*	*	37	*	10	*	*
	5541	282	0	0	0	26	*	30	*	*
	5521	204	50	*	1	7	0	4	*	*
	5511	535	40	*	343	6	0	22	*	*
	4512	140	*	*	*	0	*	10	*	*
	4469	48	*	*	*	52	*	11	*	*
	3713	*	*	*	*	5	0	7	*	*
	3594	166	*	*	0	0	*	133	375	*

* No sample occurrences

Waste oils, waste batteries and waste solvents were stored onsite most frequently. The mean waste quantities stored (Table 3.6) were averages of only those SIC's that stored wastes. Waste oils were usually stored in waste oil tanks. Interceptors wastes were accumulated in the interceptor/separator system until sufficient waste volume was generated to necessitate disposal. There were no quantities of wastewaters from underground gasoline storage tanks reported as being stored. The quantities of waste coolant stored generally represented mean waste coolant quantities that were stored in waste oil tanks. It is possible that this quantity is inaccurate due to some owners/operators refusal to admit to discharging their waste coolant to the sanitary sewer.

Waste batteries were frequently taken to a scrap dealer or picked up by a scrap dealer. However, 2 percent (Table 3.7) of the batteries produced had no specific disposal method

indicated, suggesting the waste batteries likely remained onsite. There was only one SIC (7535) reporting any waste paint sludge/filters being stored onsite. Non-halogenated waste cleaners, solvents were stored onsite by all SIC's except radiator shops (SIC 7539). Most of the waste solvent quantities stored represented quantities from parts cleaning machines that were recycled every 4 to 6 weeks by such firms as Safety Kleen. There were very few occurrences of waste caustic and waste halogenated cleaners reported to be stored (see Appendix C for regional breakdown of waste quantities stored).

3.2.3 Disposal Methods and Problems

There were seven disposal methods identified in this survey for service station wastes (Table 3.7). This table also lists the percentages of each waste type disposed of by each disposal method. The majority of waste oils, interceptor wastes, underground gasoline storage tank bottoms waste solvents and waste caustic cleaners were disposed through waste haulers. Conversely, the majority of waste coolant from radiators and waste paint sludge/filters were disposed by, respectively, flushing into sanitary sewers/septic tanks or as municipal solid waste. The only respondent who utilized halogenated cleaners had not yet generated enough spent cleaners to require disposal (see note in Table 3.7).

The largest problem reported during the survey was the cost associated with disposing of some of the wastes. It was found that prior to 1986, most service stations were paid for waste oils. Since about 1986 most service stations must now pay an average of .20¢ per litre to have their waste oils hauled away.

It was also identified that haulers/receivers for certain waste types have close to a monopoly on these services (ie. waste oils). Consequently, a service station operator has little choice in the cost of waste disposal.

The breakdown of service stations reporting waste disposal problems is listed in Table 3.8.

3.2.4 Waste Classification

The nine waste types adopted for this survey were classified according to MOE Regulation 309. Some of the wastes were easily categorized within this regulation (ie. waste oils, coolant), while the appropriate waste class was uncertain for other wastes. During onsite interviews, samples were taken to help characterize and class waste coolants, batteries and caustic liquids and sludges. Chemical analyses

TABLE 3.7 SUMMARY OF WASTE DISPOSAL METHODS

WASTE TYPE	SAMPLE TOTAL	WASTE DISPOSAL METHOD (% BY WASTE TYPE)						
		None	Waste Hauler	Reused	Onsite Incineration	Scrap Dealer	Evaporation	Landfill/Sewers/Onsite
1	170	4	76	11	3	1	0	5
2	16	13	69	0	0	0	0	19
3	1	0	100	0	0	0	0	0
4	62	3	16	15	0	2	0	65
5	146	3	1	2	0	90	0	3
6	7	0	0	0	0	0	14	86
7	130	6	68	5	2	1	8	10
8	6	0	67	0	0	0	0	33
9	18	0	0	0	0	0	0	0

Notes:

1. All values are reported as percent of respondents utilizing each waste disposal method
2. Waste types defined in Table 2.7
3. See Appendix C for breakdown of disposal method by region, waste type and SIC
4. Waste Disposal Method "None" was noted for all respondents who did not dispose of their wastes - These wastes are reportedly stored onsite
5. No disposal method reported for waste type 9 (The single respondent recently switched to halogenated cleaners and had not yet generated sufficient spent cleaners to require disposal)

Table 3.8
SERVICE STATIONS REPORTING WASTE MANAGEMENT PROBLEMS

Region	# of Waste Generators	Waste Management Problem	
		Yes	% Yes
K	31	5	16
L	50	6	12
M	27	2	7
N	58	3	5
P	<u>31</u>	<u>0</u>	<u>0</u>
Totals	197	16	8

Note: Based on only those service stations which reported generating waste (ie. 197 out of 292 total respondents)

were performed on liquids, and sludges and on leachate generated from the Regulation 309 leach test. Chemical analyses were performed for dissolved metals and cations, as these chemicals were considered the most likely constituents of concern. Although these analyses do not provide a complete characterization of the waste composition, they provide some insight into the waste types which are most likely of environmental concern.

Chemical analysis performed on single grab samples of liquid wastes from 1) a radiator shop (SIC 7539) caustic cleaning tank, 2) an engine rebuilding shop (SIC 3594) caustic liquid cleaning tank, 3) used coolant from radiators, 4) new coolant and 5) battery fluid are summarized in Table 3.9. Used ethylene glycol, radiator shop caustic and engine rebuilding shop caustic are typically disposed of by discharge to the sanitary sewer system. In order to evaluate the chemical analysis for these wastes, the chemical composition was compared to the Regional Municipality of Waterloo by-law for sanitary sewer discharge, which is typical of by-laws throughout Ontario. This comparison shows that all three wastes at full strength (ie. prior to any mixing that may occur upstream of the property line discharge point into the sewer) exceed at least two of the available criteria. The chemicals exceeding the sewer discharge criteria for each waste are summarized as follows:

- i) Waste Coolant (ie. Ethylene Glycol) - lead, phosphorus
- (ii) Waste Radiator Shop Caustic - aluminum, copper,
lead, phosphorus, zinc
- iii) Waste Engine Rebuilding Shop - aluminum, copper,
Caustic iron, lead, zinc

PARAMETER	LIQUIDS				SLUDGE			LEACHATE			
	Used Ethylene Glycol (mg/L)	Rad. Shop Caustic (mg/L)	Eng. Shop Caustic (mg/L)	Used Battery Acid (mg/L)	Unused Ethylene Glycol (mg/L)	R.M.O.W. Criteria (a) (mg/L)	Eng. Shop Caustic (mg/L)	Typical Municipal Sludge (c) (mg/L)	Battery Lead (mg/L)	Rad Shop Caustic Sludge (mg/L)	Leachate Quality Criteria x 100 (b)
Aluminium	7.08	56.9	59.3	18.6	4.36	50	392		<0.15	<0.15	
Arsenic	-	-	-	<0.3	<0.3		-		<0.3	<0.3	
Barium	0.027	0.059	8.35	<0.001	0.054		1.92		0.033	0.78	100
Beryllium	<0.03	<0.03	<0.03	<0.003	<0.003		<0.03		<0.003	<0.003	
Boron	1310	261	14.5	0.2	1430		17.9		0.025	19.7	500
Cadmium	<0.25	<0.25	0.42	0.082	<0.025	5	5.32	0.33	<0.025	0.049	0.5
Calcium	2.25	4.49	320	28.1	1.92		3870		1.55	9.61	
Chromium	<0.3	1.8	11.6	0.12	<0.03	5	53.3	62.87	<0.03	<0.03	5
Cobalt	<0.2	<0.2	<0.2	<0.02	<0.02		2.52		<0.02	<0.02	
Copper	2.66	60.8	32.4	0.26	0.12	5	231	34.28	<0.015	75.6	
Iron	11.1	1.83	265	14	5.19	50	3620		<0.03	<0.045	
Lead	27.4	235	291	2.25	<0.08	5	1150	39.75	30.3	11.7	5
Magnesium	0.7	0.47	134	30.4	0.24		1410		0.7	9.89	
Manganese	0.11	0.05	7.18	0.016	0.047		68.2		<0.003	0.63	
Molybdenum	2.5	38.3	6.87	<0.04	4.3		11.7		<0.04	0.83	
Nickel	<0.25	<0.25	0.7	0.064	<0.025	5	11.6	9.15	<0.025	0.045	
Phosphorus	308.7	224.6	72	0.13	440.1	100	312.3		<0.13	4.86	
Potassium	1170	1560	224	0.4	950		232		0.12	156	
Silicon	32.2	25.8	134	6.2	137.8		74.7		3.98	52.8	
Silver	<0.3	<0.3	<0.3	0.008	<0.03		<0.3		<0.03	<0.03	5
Sodium	†	†	†	288	5280		†		2.33	4170	
Strontium	0.02	0.02	1.17	0.002	0.037		11.3		0.004	0.16	
Titanium	<0.06	0.042	0.86	<0.0006	0.049		6.73		<0.0006	<0.0006	
Vanadium	<0.1	<0.1	0.18	<0.01	<0.01		0.57		<0.01	<0.01	
Zinc	1.63	16.9	49.1	0.86	<0.015	5	332		0.076	31.1	
pH		11.34	12.1	0.05			12.08				

CONCENTRATIONS PRESENTED IN TABLE REPRESENT THE RESULTS OF CHEMICAL ANALYSIS OF ONE SAMPLE FROM EACH WASTE CATEGORY

- a Regional Municipality of Waterloo Sanitary Sewer By-Law 29-73
- b Ministry of Environment Leachate Quality Criteria from Schedule 4, Regulation 309
- c Canviro Consultants Ltd. (1984)
- † Interference prevented analysis

It should be noted that the samples of caustic were not neutralized during or following sampling. Therefore, they do not necessarily represent the waste caustic discharged to sewers which is reportedly neutralized prior to discharge. Concentrations for these wastes probably represent a worst case. It is apparent that waste coolant and possibly radiator shop caustic and engine rebuilding caustic are not of suitable composition to allow direct discharge to sanitary sewers, as is the current practice, if the combined facility discharge at point of entry to the municipal sewer exceeds applicable sewer use criteria.

Chemical analysis of these same liquids were also compared to the Regulation 309 Leachate Quality Criteria as shown in Table 3.9. Waste coolant, waste radiator shop caustic and waste engine rebuilding caustic should be classified as leachate toxic based on the one analysis of each waste type performed in this study, depending on the management scenario.

Unused ethylene glycol was analyzed (Table 3.9) in order to provide an indication of the change of composition during usage. It is evident that concentrations of several metals are higher in used coolant than in unused coolant. These include copper, iron, lead and zinc.

Chemical analysis of used battery acid, shown in Table 3.9, identifies the presence of several dissolved metals including aluminum, cadmium, chromium, copper, iron, lead, nickel, silver and zinc. These metals are probably attributable to dissolution of the battery core. Used battery acid is classified as a corrosive waste due to a pH of less than 2.0.

A caustic tank sludge (from an engine rebuilding shop-SIC 3594) was also analyzed as shown in Table 3.9. As expected, the results indicated high concentrations of a range of heavy metals. Although no criteria currently exist for sludge composition, some insight to the properties of this sludge can be obtained by comparing this analysis to an analysis of municipal sludge (Table 3.9). It is evident that the caustic sludge exceeds typical municipal sludge compositions for cadmium, copper and lead. Unusually high concentrations of zinc and molybdenum were also reported.

Two potentially hazardous solid wastes were submitted for leach tests according to the Regulation 309 protocol. These samples were radiator shop caustic sludge and a core from a typical automobile battery. The leachate test on the battery was completed to attempt to simulate the fate and possible effects of waste batteries that are disposed and eventually crushed (ie. at wreckers or at municipal landfills).

It should be noted that the used battery was drained, cut into pieces and the casing material removed prior to analysis in order to provide a representative sample of the battery core.

The caustic sludge was submitted for a leach test since the disposal method used for caustic sludge was typically municipal landfill. The sludge was allowed to dry for several days prior to analysis to simulate the disposal practices of the radiator shops contacted.

Analysis of leachate generated for these wastes is shown in Table 3.9 along with the Schedule 4 Leachate Quality Criteria from Regulation 309. Wastes from which leachate exceeds 100 times the Schedule 4 criteria are considered as hazardous materials and should be disposed as such. Based on the Schedule 4 criteria for lead, both radiator shop caustic sludge and used battery cores should be considered as hazardous wastes and disposed of at a hazardous waste facility.

The resulting classification under MOE Regulation 309 of all waste types from the survey are summarized in Table 3.10. Some waste classes were assigned based on discussions with Ministry personnel and were not verified by chemical analysis.

These include the waste classes for:

- i) paint sludge, paint overspray and spray booth filters
- ii) sludge from non-halogenated cleaners, thinners, and solvents
- iii) sludge from halogenated cleaners.

3.2.5 Waste Haulers

There were 27 waste haulers identified during the survey (these are listed in Appendix F). Waste haulers were used for disposing of most of the waste oils, interceptor wastes, wastewater from gasoline storage tanks, waste solvents and waste caustic cleaners identified in this study. Approximately 44 percent of the 197 retail service stations responding with waste quantities had written agreements with waste haulers (see Table 3.11). These written agreements were only for hauling waste oils and solvents. No written agreements were reported for the disposal of other waste (ie. batteries, caustics, sludges, etc.). Region 'M' had the highest hauler agreement percentage of 56 and Region 'P' had the lowest at 19 percent (see Table 3.11). The percentages of service stations in Ontario generating waste that had a waste hauler agreement is summarized in Table 3.12 by SIC.

Table 3.10
WASTE CLASSIFICATION

Waste Type	Possible Waste Class	Comments/Waste Class Description
1) Waste oil from oil changes and/or transmission fluid.	252 T/L	<ul style="list-style-type: none"> - Oily waste - Waste crankcase oils & lubricants - Small quantity exemption probably not applicable due to waste quantity
2) Interceptor Wastes (Oil/Sludge/Water)	251 T/L	<ul style="list-style-type: none"> - Oily waste - Waste oils/sludges (petroleum-based) - Small quantity exemption probably not applicable due to waste quantity - Waste characteristic assigned on assumption that waste will fail slump test
3) Gasoline storage tank bottoms		<ul style="list-style-type: none"> - Fuels (light fuel) - Small quantity exemption may apply
a) Liquids	221 H/I/T/L	<ul style="list-style-type: none"> - Waste characteristic assigned on assumption that waste includes gasoline (for 221 I)
b) Sludges	221 H/I/T/L/R	<ul style="list-style-type: none"> - Waste class assigned based on PACE (1986) - Small quantity exemption may apply
4) Coolant from Radiators	212 L/T*	<ul style="list-style-type: none"> - Non-halogenated spent solvent (glycol) - Aliphatic solvents and residues - Waste class 212 L exempt from generator registration if effluent is discharged to sanitary sewers - Waste class 212T requires generator registration for discharge to sanitary sewers as determined in effluent at the property line - All discharges must satisfy municipal by-laws - Small quantity exemption not likely applicable because of volumes
5) Used Batteries:		
a) Spent acid solution	112C*	<ul style="list-style-type: none"> - Acid solutions, sludges and residues containing heavy metals - Waste characteristic based on pH <2.0 - Small quantity exemption may apply
b) Battery core (minus case)	146T*	<ul style="list-style-type: none"> - Waste characteristic assigned on basis of lead levels in leachate greater than 100 times Schedule 4 criteria - Small quantity exemption probably not applicable

* Waste class verified by chemical analysis of one waste sample.

Legend: H = Hazardous Industrial Waste
I = Ignitable Waste
C = Corrosive Waste
R = Reactive Waste
T = Leachate Toxic Waste
L = Liquid Industrial Waste

Note: Small quantity exemption = 25 L/month for waste characteristic L
= 5 kg/month for waste characteristics H,I,C,R,T

Table 3.10
(Continued)

Waste Type	Possible Waste Class	Comments/Waste Class Description
6) Paint sludge/Paint overspray/Spray booth filters	145 H/I/T/L/N	<ul style="list-style-type: none"> - Miscellaneous organic wastes and mixed wastes - Wastes from the use of paints, pigments and coatings - Small quantity exemption may apply - Solvent based paint 145 H/I/T/L - Water based paint 145 L or T - Sludges and filters 145 H/I/T/L/N
7) Non-halogenated cleaners, thinners and solvents:		<ul style="list-style-type: none"> - Non-halogenated spent solvents = 211 - Aromatic solvents and residues, 213 - Petroleum distillates
a) Liquids	211 H/I 212 H/I 213 H/I	<ul style="list-style-type: none"> - Small quantity exemption may apply - Waste characteristic assigned on basis of pure compounds and Schedule 1 solvent list
b) Sludge	211 H/I/T/L 212 H/I/T/L 213 H/I/T/L	<ul style="list-style-type: none"> - Same as 7(a) - Small quantity exemption likely applies
8) Caustic Agents:		
a) Liquids **	121 C/T*/L or 122 C/T*/L	<ul style="list-style-type: none"> - Alkaline solutions, sludges and residues containing heavy metals - Small quantity exemption may apply - Waste class 212 L exempt from generator registration if effluent is discharged to sanitary sewers - Waste class 212T requires generator registration for discharge to sanitary sewers as determined in effluent at the property line - All discharges must satisfy municipal by-laws
b) Sludge **	121 C/T*/L or 122 C/T*/L	<ul style="list-style-type: none"> - Same waste class as 8(a) - Small quantity exemption likely applies - Waste characteristic assigned on basis of lead levels in leachate greater than 100 times Schedule 4 criteria
c) Neutralized Liquids/Sludges **	131 T/L or 132 T/L	
9) Halogenated Cleaner		
a) Liquids:	241 H/I	<ul style="list-style-type: none"> - Halogenated solvents and residues - Small quantity exemption may apply - Waste characteristic assigned on basis of pure compounds
b) Sludge	241 H/I	<ul style="list-style-type: none"> - Same as 9(a) - Waste characteristic assumed - not verified by chemical analysis - small quantity exemption likely applies

* Waste class verified by chemical analysis of one waste sample.

** Waste class depends on presence/absence of heavy metals

Legend: H = Hazardous Industrial Waste
I = Ignitable Waste
C = Corrosive Waste
R = Reactive Waste
T = Leachate Toxic Waste
L = Liquid Industrial Waste

Note: Small quantity exemption = 25 L/month for waste characteristic L
= 5 kg/month for waste characteristics H,I,C,R,T

Table 3.11
SERVICE STATIONS POSSESSING A WRITTEN
WASTE HAULER AGREEMENT

Postal Code Region	No. of Waste Generators	Waste Agreement	
		Yes	% Yes
K	31	15	48
L	50	25	50
M	27	15	56
N	58	26	45
P	31	6	19
Totals	197	87	44

Table 3.12
SUMMARY OF SURVEYED WASTE GENERATORS WITH WRITTEN
WASTE HAULER AGREEMENTS BY SIC

SIC	Sample Total	Waste Generators with Hauler Agreements	
		No.	%
7542	6	0	0
7539	8	2	25
7538	78	37	47
7536	8	6	75
7535	16	4	25
7512	8	4	50
5926	6	1	17
5571	6	1	17
5559	6	3	50
5541	9	9	100
5521	13	7	54
5511	14	13	93
4512	3	0	0
4469	7	1	14
3713	3	0	0
3594	6	1	17
Totals	197	89	45

4.0 EXTRAPOLATION OF WASTE DATA TO ONTARIO

4.1 Extrapolation of Survey Data

4.1.1 Extrapolation Procedure

The extrapolation procedure adopted to estimate province wide waste generation was a simple linear extrapolation which was performed for each SIC and each waste type (1 to 9). The estimated waste quantity generated for a particular waste type was determined for each SIC category as follows:

$$Q_{i,j} = q_{i,j} \quad N_j$$

$Q_{i,j}$ = total waste generation of waste type i in SIC category j

$q_{i,j}$ = mean waste generation of n_j service stations of waste type i in SIC category j (from survey)

N_j = total number of service stations in Ontario in SIC category j

n_j = number of service stations in survey in SIC category j

The province wide estimates of waste generation for a selected waste type was determined as follows:

$$Q_i = \sum_{j=1}^{n_{sic}} Q_{i,j}$$

Q_i = total waste generation of waste type i

n_{sic} = number of SIC categories in survey.

Prior to extrapolation, the inventory of service stations within each SIC category was modified to account for duplication. The R.L. Polk listing provided a breakdown of the number of service stations listed under each SIC category. However, a service station was possibly counted more than once depending on the nature of its business. The listing identified 28,520 SIC counts for service stations which fell into the SIC categories of interest to this study and provided a breakdown of the number of service stations in each category. However, a total of only 17,590 individual service stations exist. Therefore, the breakdown of service stations in each SIC as shown in Table 2.3 needed to be corrected to reflect the reported total of 17,590. This was necessary in order to avoid overestimating the quantities of waste generated province wide.

Population Estimate A, which sums up to 17,590 is shown in Table 4.1 for each SIC category. The methodology utilized to obtain this population breakdown is discussed in detail in Appendix G. The estimated overlap is also reported as a percent in Table 4.1 to provide an indication of the degree of overlap for each SIC category.

Table 4.1
ESTIMATED POPULATIONS FOR EXTRAPOLATIONS

SIC	SIC Definitions and Codes	Counts	Sample	Overlap	Popul. Est. A	Popul. Est. B
		Including Overlap (R.L.Polk)				
			Total	(%)		
7542	Car Washing & Polishing	825	9	49	477	413
7539	Radiators Automotive	655	8	48	387	335
7538	Automobile Repairing & Service	9,100	82	45	5,671	4,913
7536	Transmission Automotive	735	8	77	187	162
7535	Automobile Repairing & Painting	3,250	30	17	3,030	2,625
7512	Automobile Renting & Leasing	2,175	19	49	1,238	1,073
5926	Batteries Storage Retail	215	6	0	215	186
5571	Motorcycle Dealers	390	6	53	205	178
5559	Snowmobiles	485	7	51	268	232
5541	Service Stations Gasoline	5,585	51	60	2,545	2,204
5521	Automobile Dealers Used	2,825	27	66	1,092	946
5512	Automobile Dealers New	1,385	14	11	1,380	1,196
4512	Helicopter Dealers	25	4	0	25	22
4469	Marine Motor Dealers	545	7	0	545	472
3713	Automobile Customizing	110	7	0	110	95
3594	Engines Rebuilding & Exchanging	215	7	0	215	186
	Totals	28,520	292		17,590	15,238

Note: (i) See Appendix G for calculation of population estimates

A second population estimate (B) was also developed for use in extrapolating waste quantities. This population was developed based on the rationale that 13.37% of the addresses provided in the Polk listing were incorrect as discussed in Section 2.3.1. Therefore, the total reported population of 17,590 was reduced by 13.37% and the redistributed populations for each SIC were calculated as shown in Table 4.1. This population reduction estimate assumes that 13.37% of the total population of businesses are no longer in existence whether these businesses have only moved or not. As such, population estimate B should be considered a lower limit.

Waste quantities were extrapolated based on population estimates A and B (Table 4.1). The resulting waste quantities are discussed in Section 4.1.2.

4.1.2 Estimated Waste Quantities

Mean waste quantities determined from the survey data were extrapolated using the procedure discussed in Section 4.1.1. These estimated waste quantities are summarized in Table 4.2. In reviewing this table, the volume of waste oil (12.0 to 13.8 million Igal/year) far exceeds other estimated waste volumes. Non-halogenated solvents are second in total volume and are estimated at 823,000 to 950,000 Igal/year. The estimated number of waste batteries is 820,000 to 947,000. Quantities for paint sludge/filters and halogenated solvents are relatively small compared to other wastes.

Table 4.2
ESTIMATED QUANTITIES FOR ONTARIO

Waste Type	Units	<u>Estimated Quantity</u>	
		(A)	(B)
1. Waste Oil	Igal	13,828,268	11,981,379
2. Interceptor Wastes	Igal	366,285	317,231
3. Gasoline Storage Tank Bottom*	Igal	-	-
4. Waste Coolant	Igal	750,159	649,824
5. Batteries	each	947,014	820,236
6. Paint Sludge/Filters	lbs	40,070	34,716
7. Non-halogenated Waste Solvent, Thinners & Cleaners	Igal	949,502	822,713
8. Waste Caustic	Igal	65,122	56,360
9. Halogenated Waste Cleaners	Igal	14,513	12,563

* Waste type 3 quantities not calculated due to insufficient survey data.

4.1.2.1 Type of Business

Quantities for all waste types were extrapolated by SIC for all of Ontario as shown in Table 4.3. These extrapolations were based on the survey results for each SIC as discussed in Chapter 3.0. Based on the estimates, the largest producers of waste oils, coolant, batteries and non-halogenated solvents were general repair shops (SIC 7538) and new car dealers (SIC 5511). SIC 7538 had the greatest number of

TABLE 4.3 ESTIMATED WASTE QUANTITIES FOR EACH SIC CATEGORY

WASTE TYPE	1		2		3		4		5		6		7		8		9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
UNITS	Igal		Igal		Igal		Igal		each		lbs		Igal		Igal		Igal	
SIC	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
7542	130380	112887	217300	188144	0	0	0	0	12720	11013	0	0	1272	1101	0	0	0	0
7539	968	838	1451	1256	0	0	186728	161638	0	0	4838	4188	0	0	42086	36431	14513	12563
7538	5320850	4609652	63626	55121	0	0	266468	230851	372972	323120	0	0	257131	222763	0	0	0	0
7536	332860	288360	9350	8100	0	0	2805	2430	2291	1985	0	0	35390	30659	0	0	30659	0
7535	606000	525000	0	0	0	0	2424	2100	96960	84000	7272	6300	102010	88375	0	0	0	0
7512	485426	420729	0	0	0	0	21763	18662	30885	26769	0	0	59945	51956	0	0	0	0
7526	23292	20150	0	0	0	0	0	0	169850	146940	0	0	5160	4464	0	0	0	0
7521	62798	54527	0	0	0	0	1708	1483	6833	5933	0	0	7858	6823	0	0	0	0
7559	139934	121137	0	0	0	0	0	0	22206	19223	0	0	7925	6861	0	0	0	0
7541	643735	557482	9980	8643	0	0	43914	38030	59483	51513	0	0	31289	27096	0	0	0	0
7521	853216	739141	4449	3854	0	0	14641	12683	35065	30377	8089	7007	-14277	12388	0	0	0	0
7511	5066571	4391029	60129	52111	0	0	208971	181109	107640	93288	19714	17086	397144	344192	0	0	0	0
7512	2563	2255	0	0	0	0	0	0	19	17	0	0	125	110	0	0	0	0
7469	58471	50639	0	0	0	0	0	0	29274	25353	0	0	15494	13418	0	0	0	0
7373	0	0	0	0	0	0	0	0	79	68	157	136	660	570	0	0	0	0
73594	101204	87553	0	0	0	0	737	638	737	638	0	0	13821	11957	23036	19929	0	0
Totals	13,828,268	11,981,379	366,285	317,231	0	0	750,159	649,824	947,014	820,236	40,070	34,716	949,502	822,713	65,122	56,360	14,513	12,563

Notes:

1. Population estimate calculations shown in Appendix B
2. Extrapolation not performed for waste type 3 due to insufficient survey data

No other sources of waste quantity information were obtained for this waste.

4.3.4 Waste Coolant

The high and low estimates of waste coolants produced by retail service stations annually from the survey were 750,159 and 649,824 lgal. No estimates of annual quantities of waste coolant produced by retail service stations was obtained from waste receivers or other contacts. The reliability of these waste generation estimates is questionable due to the uncertainty in quantities obtained during the survey.

4.3.5 Waste Batteries

There were no waste battery quantity estimates from waste receivers for Ontario. This is due mainly to the fact that most waste batteries either were stored onsite or went to local wrecking or scrap yards. CANVIRO's high and low estimates of waste batteries produced annually in Ontario by retail service stations were 947,014 and 820,236.

From the survey, most service stations with waste batteries did respond with a quantity of waste batteries produced per year. Therefore, these estimated quantities are considered relatively accurate.

4.3.6 Waste Paint Sludge/Filters

The estimated quantities of paint sludge/filters from the survey extrapolation were 40,070 and 34,716 pounds/year. It was difficult to obtain quantities for this waste type from retail service stations (primarily paint and body shops, SIC 7535 and new car dealerships SIC 5511). Most shops replied having little if any waste paint sludge/filters. The survey identified that there was very little leftover paint and the number of waste paint filters was typically kept down by cleaning and reusing old filters. Any paint sludge was usually still in an old paint container and was disposed of as municipal waste as were paint filters. Estimated quantities for this waste are of questionable reliability due to poor records of waste generation. No estimates of waste paint sludge/filters were obtained from any waste receiver.

4.3.7 Non-Halogenated Waste Cleaners, Thinners and Solvents

One waste receiving company's estimate of waste cleaners, thinners and solvents collected by them, from Ontario was 744,000 gallons per year. CANVIRO's estimates of this waste quantity were 949,502 to 822,713 lgal. CANVIRO (1988) estimated approximately 900,000 lgal/year for spent solvents.

These estimated waste quantities compare well with the calculated upper limit of 1,550,000 lgal/year suggesting that the estimated generation rates are fairly reliable. The majority of the waste solvents etc., from the survey were recycled. The waste receiver which collected the majority of waste solvents in Ontario (744,000 gallons), recycled the solvents through their U.S. operations.

4.3.8 Waste Caustic Cleaners

There were no waste caustic cleaner quantity estimates for Ontario from waste receivers. CANVIRO's estimated high and low waste quantities were 65,122 gallons and 56,360 gallons. This waste type was found to be produced by SIC's 3594 (engine rebuilding shops) and SIC 7539 (radiator shops) and used primarily for cleaning engines or radiators. Waste quantities reported are not considered reliable due to poor waste generation records for this waste type.

4.3.9 Halogenated Waste Cleaners

CANVIRO's estimates of waste quantities for cleaners (halogenated) produced by retail service stations in Ontario were 14,513 and 12,563 lgal. Again, there were no waste quantities from any receivers. This waste type was found only at SIC 7539, radiator shops. However, many operators were not able to distinguish between halogenated or non-halogenated solvents or could not provide sufficient information for the CANVIRO representative to determine this distinction. Waste quantities for this waste type are not considered to be accurate.

The estimated quantities of waste produced annually from retail motor vehicle service stations were discussed in Chapters 3 and 4. Chapter 5 involves a discussion of the current waste management practices employed by service stations in Ontario and the possible environmental impacts.

5.1 Waste Oils

Waste oils appeared to be better managed than any other wastes generated by retail service stations in Ontario. Most service stations had onsite waste oil storage tanks with waste volume storage capacity ranging from one month to two years. The stations having storage tanks usually disposed of the waste oil through a waste oil hauler. From the survey, 94 percent of the waste oils produced annually in Ontario were picked up by a waste hauler. The majority of these wastes are believed to be re-refined although some waste haulers were reported to use waste oil for dust suppression on roads.

Of the remaining 6 percent of waste oil not picked up by a hauler, 2 percent was added to heating oil or other fuel and incinerated, 2 percent was reused for purposes such as undercoating, 1 percent was disposed of as either municipal waste or for onsite dust suppression and 1 percent reported no disposal method. Of the reported waste disposal methods for waste oil, the oil disposed of as municipal waste or for onsite dust suppression and that for which no disposal method was reported are of greatest concern in terms of potential adverse environmental impacts. An upper limit of 138,300 lgal of waste oil may be disposed at municipal landfills across Ontario (the breakdown between oil disposed as municipal waste and that used for onsite dust suppression was not determined due to the low percentage of the total waste oil). An equivalent quantity is reported as having no waste disposal method. Waste oils which are used as fuel supplements may also be of concern due to air emissions arising from incomplete combustion.

5.2 Interceptor Wastes

Waste liquids, oils and sludge quantities from interceptors and separators were found to be difficult to quantify. Most service station operators found it difficult to even estimate an annual quantity of waste produced from their interceptors.

As a result, the estimated quantities of waste generated vary somewhat and are not considered to be very accurate. Regardless, it was found that 97% of these underground separators/ interceptors were pumped out by either a waste oil hauler or a septic tank cleaning service. This suggests that although the quantities generated for this waste may not be reliable, it appears that most service stations have their interceptor wastes hauled away for disposal. However, it is presently unknown whether the waste haulers are "Ministry Approved Carriers". Furthermore, only 44% of waste generators possessed written agreements with waste haulers. Therefore, compliance with Regulation 309 exemption criteria cannot be fully assessed based on available data.

The ultimate fate of interceptor wastes was investigated to determine what adverse environmental impacts may be associated with this waste. Contact with Can Am (1987) who operate a wastewater treatment facility which accepts interceptor wastes, reported that the approximately 1.0% by volume of waste oil exists in interceptors is re-refined. The sludge, which was not quantified, is "solidified" and disposed of at a municipal landfill. The majority of the interceptor wastes is water which is pretreated prior to discharge to sanitary sewers. Based on contact with waste receivers during this study, it would appear that interceptor wastes collected by waste haulers are generally disposed of in the manner discussed above.

The ultimate fate of interceptor wastes collected by septic tank cleaning services was not determined as part of this study due to the numerous small companies who provide this service.

5.3 Gasoline Storage Tank Bottoms

Most service stations with gasoline storage tanks who were contacted during the survey reported they either did not have any wastewaters from their storage tanks or they did not know the quantities generated. The wastewaters or tank bottoms from underground gasoline storage tanks were usually pumped by the gasoline supplier. Contact with the Ontario Petroleum Association revealed that their member organizations transfer recovered tank bottoms to either a bulk storage site for eventual re-refining or else directly to the refinery. At the refinery the gasoline is reprocessed and the wastewater is treated prior to discharge.

The practices of non-OPA member gas suppliers was not identified during this study although it is assumed that similar practices are followed. Also, tank bottom quantities produced by non-OPA members are probably only a fraction of the OPA quantities reported in this study due to the smaller market share.

It is concluded that tank bottoms from gasoline storage tanks appear to be well managed and pose little threat to the environment.

5.4 Waste Coolant

Approximately 77 percent of the waste coolant from radiators was disposed of to the sanitary sewer systems throughout Ontario. This amounts to an estimated 500,365 to 577,622 lgal of waste coolant. However, the estimated quantities of waste coolant from retail service stations for Ontario was considered to be low due to several stations not responding with a quantity of waste coolant simply because they had 'no idea' how much they produced in a year. Ethylene glycol (coolant/ antifreeze) has been found to be highly biodegradable in a biological or physical/chemical treatment system (Union Carbide, 1985) and should be effectively treated at municipal sewage treatment plants. However, from the chemical analysis results, the heavy metals associated with used coolant are of concern. Concentrations in the one waste coolant sample analyzed exceeded typical sanitary sewer discharge criteria for lead and phosphorus, suggesting that waste coolant may not be suitable for direct discharge to sanitary sewers. This waste was also leachate toxic. Waste coolant may not be subject to the generator registration and manifesting requirements of Regulation 309 in this case because of the Motor Vehicle Service Station exemption for offsite management. This exemption applies only if the service station has a contract with an approved waste carrier. Currently, the waste coolant may or may not need to be registered (based on leachate toxicity and management scenario). Results of this study suggest that the current management practices for this waste should be re-examined.

5.5 Waste Batteries

The estimated quantities of waste batteries produced in Ontario 820,236 to 947,014 is considered to be reasonably accurate. Waste batteries produced by retail service stations in Ontario were generally disposed of to scrap dealers (93 percent) where they were likely recycled and the lead contents reused. (This was not confirmed as part of this study) However, approximately 2 percent (16,405 to 18,940) of waste batteries were reportedly not disposed of in any manner (ie. they are probably stored onsite). Another 3 percent (24,607 to 28,410) were disposed to a garbage receiving facility (ie. municipal landfill). The remaining 2 percent are picked up by a waste hauler presumably for recycling. The leach test results from the core of a battery indicate that under MOE Regulation 309, they would probably be classed as 'Leachate Toxic Waste', with class number 146T. This was based on the leachate being 100 times the Regulation 309, Schedule 4 concentration for lead. The liquid contents of the battery are

classified as 112C. Therefore, both the battery core and liquid contents are hazardous wastes and should be disposed of as such. Current waste disposal practices identified in this study suggest that batteries are usually accepted by scrap dealers presumably for recycling. At present, wastes which are "wholly" utilized in a recycling process are exempt from all Reg. 309 requirements. As such, no written agreement with a waste hauler is necessary, explaining the low number of written agreements reported for this waste. The most common battery disposal method is considered acceptable presuming that all scrap dealers recycle all batteries. The management and fate of these wastes by scrap metal dealers should be examined to ensure that any adverse environmental impacts are minimized.

Of greater concern are the 5% (41,012 to 47,351) of batteries that are either disposed at the municipal landfill or stored onsite.

5.6 Waste Paint Sludge/Filters

The reported quantity of waste paint sludge/filters identified in the survey is thought to be low. All (ie. 100 percent) of the waste paint sludge/filters were disposed as municipal waste. This amounts to 34,716 to 40,070 pounds/year, which includes paint sludge in old paint cans and waste filters. MOE policy to date differentiates between solvent and water based paints. Solvent based paint waste (sludge/filters) is classified as either 145 H/I/T/L/N under Reg. 309. Water based paint waste (sludge/filters/overspray) is classified as 145 T/L/N depending on the presence of metals and results of the slump test. However, these classifications were not verified by chemical analysis. Although small quantity exemptions may apply to many smaller auto body shops or other waste generators, the classification of various types of paint sludges and filters should be verified through chemical analysis and the management of these wastes assessed on the basis of this additional information.

5.7 Non-Halogenated Waste Cleaners, Thinners and Solvents

The quantities of waste solvents produced by retail service stations are thought to be reasonably accurate. Approximately 88 percent of the waste solvents produced (822,713 to 949,502 lgal) are disposed via a waste hauler for subsequent recycling. Of the remaining waste solvents, the 1 percent (8227 to 9495 lgal) disposed of to a scrap dealer and the 4 percent (32,909 to 37,980) disposed of as municipal waste or dumped onsite are of greatest concern from an environmental perspective. Air emissions from disposal as a fuel supplement (1%) and by evaporation (2%) may also be a concern although the

potential for serious environmental consequences is undocumented. Waste solvents are classified as Hazardous Industrial Waste if they are included in the Schedule 1 list of industrial waste streams (211 H, 212 H, or 213 H) under MOE Regulation 309.

Sludges from non-halogenated cleaners, such as residue from parts cleaners, is a waste stream which may have an adverse environmental effect due to current waste disposal practice. This waste, which was not quantified as part of this study, is currently disposed of as a municipal waste. The appropriate classification and disposal method for this waste should be determined as a follow up to this study.

5.8 Waste Caustic

The quantities of waste caustic cleaners produced by retail service stations was found to be fairly low. There were a total of 6 service stations reporting to have waste caustic out of 292 total. All responses were either from radiator shops (SIC 7535) or engine rebuilding shops (SIC 3594). About 67 percent of the waste caustic produced (18,599 to 43,632 lgal) was disposed via a waste hauler. The other 23 percent was discharged to sanitary sewers reportedly following neutralization. The waste caustic dumped to sanitary sewers may be of concern due to the high heavy metal concentrations associated with this type of waste which exceeds typical criteria for sanitary sewer discharge and is leachate toxic. It should be noted that chemical analysis were performed on un-neutralized samples. These observations suggest that waste caustic is not appropriate for direct discharge to sanitary sewer. The composition of waste caustics should be examined in greater detail relative to sewer discharge criteria and the fate of dissolved metals in sewage treatment plants to ensure that current waste management practices are adequate.

The caustic sludge from caustic tanks was identified as a potential waste of concern. Analytical results indicate that this waste could be corrosive or leachate toxic (or both). Under these circumstances, it likely requires management as a hazardous waste. However, this sludge is reportedly disposed of as municipal waste. It should be noted that any service stations producing waste caustic sludge probably qualify for the 5 kg/month small quantity exemption for caustic tank sludge.

5.9 Halogenated Waste Cleaners

There was only one retail service station responding to having halogenated waste cleaners out of the 292 service stations surveyed. This was thought to be a low number of responses for this waste type. This suggests that extrapolated waste quantities are an underestimate of the actual waste generation.

Although no chemical analyses were completed for this waste type, halogenated waste cleaners are classified as a Hazardous Industrial Waste (241H) and should be disposed of as a hazardous waste although small quantity exemptions may apply. No waste disposal method was reported by the one respondent who generated this waste.

Sludges from halogenated cleaners were also identified as a waste stream although the quantity generated is expected to be a small fraction of liquid waste volume. The amount of sludge generated is currently unquantified. It was reported that waste sludge is disposed of as municipal waste. Although small quantity exemptions probably apply to this waste, disposal as municipal waste is not suitable. Waste disposal practices for this waste should be reviewed and appropriate guidelines developed.

It is concluded that guidelines should be developed for the management of spent halogenated cleaners and sludge.

The following conclusions were reached with regard to the waste management practices of service stations in Ontario:

- o Inconsistencies in the province wide inventory of service stations, the small sample size, biases introduced during the survey and an inability to verify the waste quantity extrapolations limits the reliability of the waste quantities reported in this study.
- o The reliability of waste quantities generated by retail service stations in Ontario varied by waste type. Estimated quantities of greatest reliability are:

<u>Waste Type</u>	<u>Waste Quantity</u>	
	<u>Imperial Units</u>	<u>S.I. Units</u>
1. Waste Oil	12.0 to 13.9 million Igal/yr	54.6 to 63.3 million litres/yr
5. Used Batteries	820,000 to 947,000 batteries/yr	820,000 to 947,000 batteries/year
7. Non-Halogenated Cleaners, Thinners, Solvents	823,000 to 950,000 Igal/yr	3.7 to 4.3 million litres/yr

Estimated waste quantities of uncertain reliability are:

<u>Waste Type</u>	<u>Waste Quantity</u>	
	<u>Imperial Units</u>	<u>S.I. Units</u>
2. Interceptor Wastes	317,000 to 366,000 Igal/yr	1.4 to 1.7 million litres/yr
3. Gasoline Storage Tank Bottoms	15,400 Igal/yr	70,000 litres/yr
4. Waste Coolant	650,000 to 750,000 Igal/yr	3.0 to 3.4 million litres/yr
6. Paint Sludge/ Filters	34,700 to 40,000 lbs/yr	15,700 to 18,200 kg/yr
8. Waste Caustic	56,400 to 65,100 Igal/yr	256,000 to 296,000 litres/yr
9. Halogenated Cleaners	12,600 to 14,500 Igal/yr	57,300 to 65,900 litres/yr

- o Most service stations do not keep good records of waste quantities and disposal practices
- o Of those service stations that reported producing waste, 44 percent had written waste hauler agreements
- o The high cost of waste disposal was the most frequent waste management problem identified
- o The majority of service stations producing waste oil and interceptor wastes have written agreements with waste haulers and therefore satisfy the Regulation 309 exemption criteria assuming the hauler is a "Ministry Approved Carrier". These wastes appear to be disposed of in an environmentally sound manner. The 1 percent of waste oil disposed of either as municipal waste or onsite and the 1 percent for which no disposal method was reported may have an adverse environmental impact.
- o Gasoline storage tank bottoms are usually disposed of in an environmentally secure manner by the gasoline supplier although no written waste hauler agreements were reported for this waste.
- o The current practice of discharging waste coolant to sanitary sewers at 77% of service stations surveyed may be inadequate as chemical analysis found that the discharge to sewer of this waste may violate sanitary sewer discharge criteria.
- o Current disposal practices for most (95%) of used batteries are satisfactory presuming that all scrap dealers collect batteries for reclaiming. Based on the corrosivity of the battery acid and leaching test results from the battery core it appears that batteries qualify as a hazardous waste. However, management of batteries by a reclaiming facility is appropriate with or without a written agreement with a waste hauler. Therefore, the low number of written agreements reported is not surprising.
- o The present practice of disposing of all (100%) waste paint sludge filters/sludge as municipal waste should be verified and possible environmental impacts studied.
- o Most (92%) non-halogenated solvents, thinners and cleaners appear to be well managed although written agreements with waste haulers only exist for a portion of the service stations surveyed. A small

portion of these wastes which are disposed of as municipal waste or onsite (4%) and at scrap dealers (1%) are of concern from an environmental perspective.

- o The majority of waste caustic (77%) appears to be disposed of by waste haulers although few written waste hauler agreements were reported. The remaining 23% of waste caustic, which is discharged to the sanitary sewer, may be unsuitable for sewer discharge, particularly if not neutralized prior to discharge.
- o The single service station producing waste halogenated cleaners did not have a waste hauler agreement or report a waste disposal method for this waste.
- o Waste sludges from caustic cleaning tanks were found to be leachate toxic and may also be corrosive. These wastes typically meet the small quantity exemption criteria and generator registration is unnecessary. These wastes are currently disposed of as municipal waste.
- o Waste sludges from non-halogenated and halogenated solvents are currently disposed of as municipal waste. These wastes typically meet the small quantity exemption criteria and generator registration is unnecessary.

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- Fisher, D., Canadian Oil, Personal Communication with B. Whiffin, Canvio, April 21, 1987.
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- Ministry of the Environment (MOE), 1985, Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste.
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- Polk, R.L., 1986. Pre-Study Estimated Inventory of Service Stations in Ontario.
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- Regional Municipality of Waterloo, 1973, Waste Water By-law Number 29-73, April.
- Schofield, D., Can Am Oil, Personal communications with B. Whiffin, Canviro, April 21 and 23, 1987.

Union Carbide Corp., 1985, Ecological Aspects of Prestone
Antifreeze and Ethylene Glycol, 1985.

University of Waterloo, Faculty of Environmental Studies
Cartographic Centre 1975, Cartographic Centre Outline
Maps.

Appendix A

Example of R.L. Polk Listing

8. J. HUNTER DIRECTORIES ---UPDATE LIST---
ASSORTED LISTS FOR ORDER # 2801 - ONTARIO

TIME- 21.56.36

DATE - 87/03/26

PAGE 100

SEQ #	N A M E	AREA	TEL #	SIC CODES	STREET# ADDRESS LINE 1	C I T Y	PRV CDE	POSTAL ADDRESS LINE 2	SRCE LG CODE CD	SEARCH CODES
15818	STAN'S OUTBOARD LTD				1484 SCOTT	OTTAWA		ON K1Y 2M4	5017 E	
	613 728-8340		5552 6	5559 6	5551 7	3428 6	5260 6	5942 7	5051 6	3734 7 CMNE
12863	EDDY'S BODY SHOP				180 ARMSTRONG	OTTAWA		ON K1Y 2M4	5017 E	
	613 729-6207		7535 7	7500 7						
1085	GRANT STREET GARAGE				1 GRANT	OTTAWA		ON K1Y 2M8	5016 E	
	613 728-3729		5512 6	7544 6	7538 6	7500 6	7541 6			
17602	HERTZ RENT A CAR				WELLINGTON ST	OTTAWA		ON K1Y 2X0	5017 E	CHAI
	613 728-4886		7512 7	7517 7						
14800	WESTERN AUTOMOBILES				3 RICHMOND RD	OTTAWA		ON K1Y 2X1	5017 E	
	613 722-0325		5521 7							
6133	DUSS BROTHERS MOTORS LTD				6 RICHMOND RD	OTTAWA		ON K1Y 2X2	5017 E	
	613 729-3245		7538 7	5521 7	7500 7	5506 7				
6152	GUS & JOHN'S SERVICE STM LTD				24 RICHMOND RD	OTTAWA		ON K1Y 2X2	5017 E	SHEL
	613 728-5324		7538 7	5541 6	7549 6	7500 7	5506 7			
15263	KELLY AUTOMOBILES / GLENN				30 RICHMOND RD	OTTAWA		ON K1Y 2X3	5017 E	
	613 725-0243		5521 7							
14786	GOODWILL AUTOMOBILE				93 RICHMOND RD	OTTAWA		ON K1Y 2X3	5017 E	
	613 728-0613		5521 7							
241	KENS AUTO SALES				33 RICHMOND RD	OTTAWA		ON K1Y 2X4	5017 E	
	613 728-3561		5511 7	5521 7	7538 7	5531 7	7500 7			
8555	PANTUSO'S PERFORMANCE CENTRE				927 WELLINGTON	OTTAWA		ON K1Y 2X5	5017 E	
	613 725-1499		9509 7	7500 7	5532 7	7538 6	5541 6			
1019	TOMAS AUTO BODY				969 WELLINGTON	OTTAWA		ON K1Y 2X7	5017 E	
	613 728-4664		7535 7	7538 6	7500 7					
3385	BECKER & SON / WALLY				1000 WELLINGTON	OTTAWA		ON K1Y 2X9	5017 E	
	613 729-6327		5521 7	7538 6	5541 6	7500 6				
11804	MR GAS LTD				999 WELLINGTON	OTTAWA		ON K1Y 2Y1	5016 E	
	613 729-0495		5541 6	7500 6						
14783	CORRIGAN AUTO SALES				991 WELLINGTON	OTTAWA		ON K1Y 2Y1	5017 E	
	613 725-0330		5521 7							
14781	CITY AUTO SALES				1011 WELLINGTON	OTTAWA		ON K1Y 2Y1	5017 E	
	613 729-1416		5521 7	7512 7	7517 7					

Appendix B

Example Cover Letter and Questionnaire

Experiments 2
Experiments 2: Effects of Practice and Interference



CANVIRO
CONSULTANTS

Reference KI23648.A0

Re: Waste Disposal Practices of Retail Motor Vehicle
Service Stations

Dear Sir:

The Ontario Ministry of the Environment (MOE) is reviewing the waste disposal practices of Retail Motor Vehicle Stations in the Province of Ontario. CANVIRO Consultants of Waterloo, Ontario have been commissioned to conduct a detailed survey of individual service stations.

Your participation in this study would be appreciated. The Ontario Petroleum Association and the Automotive Afteruse Retailers of Ontario are both aware of this study and support its intentions. A letter of introduction from the Ministry of the Environment is enclosed.

Please complete the attached questionnaire and return it to our office in the preaddressed envelope (see instructions). A CANVIRO representative will be contacting you in the next one to two weeks to answer any questions which may arise.

Thank you for your cooperation.

Sincerely,

CANVIRO CONSULTANTS

/vjj
Encl.

Brian Whiffin, P.Eng.
Project Engineer

(KIC1/024.2)

CANVIRO CONSULTANTS
519/579-3500

Suite 600, 180 King Street South
Waterloo, Ontario N2J 1P8



A Division of
CH2M HILL ENGINEERING LTD



135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

135 avenue St. Clair ouest
Bureau 100
Toronto (Ontario)
M4V 1P5

March 2, 1987

Mr. Richard J. Rush, Vice President
Canviro Consultants
A Division of CH2M Hill Engineering Ltd.
180 King Street South
Suite 600
Waterloo, Ontario
N2J 1P8

Dear Mr. Rush:

RE: Authorization to Conduct a Survey on Retail Service Stations

This letter is to confirm that the Ontario Ministry of the Environment (Waste Management Branch) has authorized the staff of Canviro Consultants to conduct a survey on the waste management practices of Retail Motor Vehicle Service Stations in Ontario.

The purpose of this survey is to obtain information on the amount and types of hazardous and liquid wastes generated at retail service facilities and current waste management practices.

The survey will take the form of a mailed questionnaire sent to a number of service stations, selected at random from different regions of the province. Follow-up telephone calls may be used to clarify information provided on the questionnaire.

Your full co-operation will be greatly appreciated.

Yours truly,

R. M. Gotts
Director
Waste Management Branch

GC/jh
IN 03 30
RMG0051
0359L

QUESTIONNAIRE

A. INSTRUCTIONS

- Step 1. Answer all questions and other requested information as best as possible.
- Step 2. If you are unable to complete the questionnaire, set it aside until a CANVIRO representative calls you.
- Step 3. When all information is complete, place questionnaire in pre-addressed envelope (enclosed) and forward to CANVIRO.

B. COMPANY INFORMATION

COMPANY NAME: _____

ADDRESS: _____

POSTAL CODE: _____ TELEPHONE NO.: (____) _____

CONTACT PERSON(S): _____

NATURE OF BUSINESS (check appropriate types):

- 1) _____ GENERAL REPAIR SERVICE STATIONS WITH GAS SERVICE
- 2) _____ GENERAL REPAIR SERVICE STATIONS WITHOUT GAS SERVICE
- 3) _____ GAS SALES ONLY (IE. GAS BAR)
- 4) _____ AIR CONDITIONING SALES AND SERVICE
- 5) _____ MUFFLER SHOPS
- 6) _____ BRAKE SHOPS
- 7) _____ BATTERY SALES AND SERVICE
- 8) _____ RADIATOR SALES AND SERVICE
- 9) _____ TRANSMISSION SALES AND SERVICE
- 10) _____ AUTO BODY REPAIR AND PAINTING
- 11) _____ AUTOMOTIVE DEALER (NEW AND USED)
- 12) _____ AUTOMOTIVE DEALER (USED ONLY)
- 13) _____ MOTORCYCLE DEALER/SERVICE
- 14) _____ ALL TERRAIN DEALER (IE. SNOWMOBILES, ATVs)
- 15) _____ MARINE MOTOR DEALER/SERVICE (IE. MARINAS)
- 16) _____ HELICOPTER DEALER/SERVICE
- 17) _____ MOTOR VEHICLE RENTING AND LEASING
- 18) _____ MOTOR VEHICLE CUSTOMIZING
- 19) _____ CAR WASH AND POLISHING
- 20) _____ ENGINE REBUILDING AND EXCHANGING
- 21) _____ OTHER (SPECIFY) _____

BREAKDOWN OF FUEL SALES (estimate percentage sold)

LEADED GAS _____ UNLEADED GAS _____ DIESEL _____ PROPANE _____

NUMBER OF FULL-TIME EMPLOYEES: _____

NUMBER OF PART-TIME EMPLOYEES: _____

C. SUMMARY OF WASTE TYPES

WASTE TYPE	CHECK APPROPRIATE TYPE (✓)	QUANTITY PRODUCED PER YEAR (gal, lbs)	MAXIMUM QUANTITY STORED (gal, lbs)	DISPOSAL METHOD
Waste Oil from Oil Changes and/or Transmission Fluid				
Sewage Sludge from Interceptor (oil/ water separator)				
Water from Under- ground Gasoline Storage Tanks				
Coolant from Radiators				
Used Batteries (number per year)				
Paint Sludge/Paint Overspray/Spray Booth Filters				
Cleaners, Thinners and Solvents: Indicate Brand Name(s) _____ _____				
Degreasing Agents: Indicate Brand Name(s) _____ _____				
Other (specify)* 				

* Does not include paper, cardboard, cloth, etc.

GENERAL PROBLEMS RELATED TO DISPOSING OF THE WASTES (list below):

DO YOU HAVE A WRITTEN AGREEMENT WITH A WASTE HAULER?

YES _____ NO _____

WASTE HAULER (specify name, address and waste type for each hauler):

COMMENTS AND SUGGESTIONS REGARDING WASTE DISPOSAL (list below):

Appendix C

C-1 Employment Characteristics

C-2 Survey Waste Quantities

C-3 Waste Quantities Stored for
Each Geographic Region

C-4 Extrapolated Waste Quantities
for Each Geographic Region

Appendix C-1

Employment Characteristics

Appendix C.1 Employment Characteristics

REGION	K						L						M					
	Full Time			Part Time			Full Time			Part Time			Full Time			Part Time		
SIC	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var
7542	6	6.00	0.00	1	1.00	0.00	9	4.50	12.25	6	3.00	4.00	6	6.00	0.00	0	0.00	0.00
7539	1	1.00	0.00	0	0.00	0.00	12	6.00	1.00	2	1.00	1.00	5	5.00	0.00	0	0.00	0.00
7538	30	2.14	2.55	8	0.57	0.67	62	2.70	2.12	16	0.70	0.72	54	3.86	4.69	22	1.57	4.53
7536	21	21.00	0.00	1	1.00	0.00	7	3.50	0.25	1	0.50	0.25	3	3.00	0.00	0	0.00	0.00
7535	7	1.40	0.24	0	0.00	0.00	25	3.5714	16.530	5	0.7142	0.7755	83	16.60	719.44	6	1.20	2.16
7512	10	5.00	25.00	1	0.50	0.25	28	5.60	25.04	6	1.20	1.36	8	2.67	0.22	4	1.33	0.89
5926	4	4.00	0.00	0	0.00	0.00	6	6.00	0.00	0	0.00	0.00	6	6.00	0.00	1	1.00	0.00
5571	1	1.00	0.00	0	0.00	0.00	1	1.00	0.00	0	0.00	0.00	30	30.00	0.00	4	4.00	0.00
5559	10	10.00	0.00	2	2.00	0.00	1	0.50	0.25	3	1.50	0.25	18	18.00	0.00	2	2.00	0.00
5541	13	1.63	0.23	14	1.75	3.44	34	2.43	2.82	38	2.71	2.20	33	3.67	3.78	22	2.44	2.91
5521	19	4.75	35.19	3	0.75	0.69	24	3.43	17.67	2	0.29	0.49	50	10.00	306.40	1	0.20	0.16
5511	67	33.50	342.25	0	0.00	0.00	146	36.50	236.75	7	1.75	3.19	43	21.50	2.25	0	0.00	0.00
4512	0	0.00	0.00	0	0.00	0.00	5	5.00	0.00	15	15.00	0.00	20	20.00	0.00	5	5.00	0.00
4469	2	2.00	0.00	1	1.00	0.00	2	2.00	0.00	0	0.00	0.00	4	4.00	0.00	2	2.00	0.00
3713	1	1.00	0.00	0	0.00	0.00	1	1	0	1	1	0	1	1.00	0.00	1	1.00	0.00
3594	1	1.00	0.00	2	2.00	0.00	2	2.00	0.00	0	0.00	0.00	2	2.00	0.00	0	0.00	0.00
Totals	193			33			365			102			366			70		

REGION	N						P						ONTARIO					
	Full Time			Part Time			Full Time			Part Time			Full Time			Part Time		
SIC	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var
7542	12	2.00	1.50	15	3.75	4.69	12	12.00	0.00	8	8.00	0.00	45	5.00	10.89	30	3.33	7.33
7539	22	7.33	29.56	1	0.33	0.22	3	3.00	0.00	1	1.00	0.00	43	5.38	15.98	4	0.50	0.50
7538	63	3.00	5.81	25	1.19	3.01	27	2.70	3.81	15	1.50	2.45	236	2.88	4.06	86	1.05	2.31
7536	13	4.33	2.89	0	0.00	0.00	4	4.00	0.00	1	1.00	0.00	48	6.00	33.50	3	0.38	0.23
7535	24	2.67	2.00	3	0.33	0.22	11	2.75	0.19	0	0.00	0.00	150	5.00	151.80	14	0.47	0.78
7512	34	4.86	17.27	8	1.14	1.27	69	34.50	650.25	3	1.50	2.25	149	7.84	168.55	22	1.16	1.29
5926	3	1.50	0.25	1	0.50	0.25	6	6.00	0.00	4	4.00	0.00	25	4.17	4.14	6	1.00	2.00
5571	4	2.00	1.00	1	0.50	0.25	12	12.00	0.00	2	2.00	0.00	48	8.00	112.00	7	1.17	2.14
5559	10	5.00	0.00	2	1.00	1.00	4	4.00	0.00	0	0.00	0.00	43	6.14	32.41	9	1.29	0.78
5541	41	2.93	7.64	38	2.71	2.06	18	3.00	2.00	19	3.17	3.14	139	2.73	4.20	131	2.57	2.76
5521	38	4.75	7.69	6	0.75	1.19	10	3.33	0.22	4	1.33	1.56	141	5.22	74.40	16	0.59	0.91
5511	58	11.60	53.84	4	0.80	0.56	17	17.00	0.00	2	2.00	0.00	331	23.64	252.80	13	0.93	1.64
4512	2	2.00	0.00	2	2.00	0.00	10	10.00	0.00	5	5.00	0.00	37	9.25	46.69	27	6.75	24.19
4469	10	3.33	3.56	4	1.33	0.22	1	1.00	0.00	0	0.00	0.00	19	2.71	2.49	7	1.00	0.57
3713	11	3.67	9.56	1	0.33	0.22	3	3.00	0.00	0	0.00	0.00	17	2.43	5.67	3	0.43	0.24
3594	25	8.33	32.89	0	0.00	0.00	3	3.00	0.00	0	0.00	0.00	33	4.71	24.20	2	0.29	0.49
Totals	370			111			210			64			1504			380		

Appendix C-2
Survey Waste Quantities

Appendix D-1
Survey Waste Generation

DISPOSAL METHOD :		0	1		2		3		4		5		6		TOTALS WASTE TYPE 0			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var	
REGION I	7542	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7538	1	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR	
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7535	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	7512	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5541	7	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	
	5521	1	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR	
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3713	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR		
Totals		13	0	0	0	0	0	0	0	0	0	0	0	13	0			
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7535	1	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR	
	7512	3	0	0	0	0	0	0	0	0	0	0	0	3	0	ERR	ERR	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5559	1	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR	
	5541	11	0	0	0	0	0	0	0	0	0	0	0	11	0	ERR	ERR	
	5521	7	0	0	0	0	0	0	0	0	0	0	0	7	0	ERR	ERR	
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3713	1	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR	
3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR		
Totals		24	0	0	0	0	0	0	0	0	0	0	0	24	0			
REGION M	7542	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7538	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7535	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	
	7512	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5541	8	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	
	5521	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3713	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
3594	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		
Totals		21	0	0	0	0	0	0	0	0	0	0	0	21	0			

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 0			
SIC :		Qty		Qty		Qty		Qty		Qty		Qty		Qty		Qty		Avg	Var
REGION N	7542	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0
	7512	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0
	5521	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		32	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0		
REGION S	7542	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7538	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7535	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0
	7512	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5559	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	5541	42	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0
	5521	14	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4512	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3713	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
	3594	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Totals		95	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 1			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION K	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	1	3600	0	0	0	0	0	0	0	0	0	0	1	3600	3600	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	1	300	0	0	0	0	0	0	0	0	0	0	1	300	300	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	1	600	0	0	0	0	0	0	0	0	0	0	1	600	600	ERR
	5541	0	0	1	300	0	0	0	0	0	0	0	0	0	0	1	300	300	ERR
	5521	1	1200	2	1000	0	0	0	0	0	0	0	0	0	0	2	2200	773	ERR
	5511	0	0	2	5000	0	0	0	0	0	0	0	0	0	0	2	5000	2500	500000
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	1	50	0	0	0	0	0	0	0	0	1	50	50	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	1	50	1	50	50	ERR
Totals		1	1200	16	14780	5	246	1	1000	0	0	0	0	1	50	24	17276		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7528	1	540	21	15046	0	0	1	700	0	0	0	0	0	0	23	16286	708	469126
	7536	0	0	3	2320	0	0	0	0	0	0	0	0	0	0	3	2320	773	1130133
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	1	400	1	800	0	0	0	0	0	0	0	0	2	1200	600	80000
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	1	36	1	36	36	ERR
	5559	1	130	0	0	0	0	0	0	0	0	0	0	0	0	1	130	130	ERR
	5541	1	100	2	1600	0	0	0	0	0	0	0	0	0	0	3	1700	567	203333
	5521	1	200	0	0	0	0	0	0	0	0	0	0	0	0	1	200	200	ERR
	5511	0	0	4	25100	0	0	0	0	0	0	0	0	0	0	4	25100	6275	32792500
	4512	1	90	0	0	0	0	0	0	0	0	0	0	0	0	1	90	90	ERR
	4469	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	1	600	0	0	0	0	0	0	0	0	0	0	1	600	600	ERR
Totals		5	1050	32	45066	2	801	1	700	1	0	0	0	1	36	41	47653		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	7528	0	0	12	32400	1	120	0	0	0	0	0	0	0	0	13	32520	2502	6620631
	7536	0	0	1	2400	0	0	0	0	0	0	0	0	0	0	1	2400	2400	ERR
	7535	0	0	2	6000	0	0	0	0	0	0	0	0	0	0	2	6000	3000	6480000
	7512	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100	100	ERR
	5926	0	0	1	250	0	0	0	0	0	0	0	0	0	0	1	250	250	ERR
	5571	0	0	1	1000	0	0	0	0	0	0	0	0	0	0	1	1000	1000	ERR
	5559	0	0	1	2400	0	0	0	0	0	0	0	0	0	0	1	2400	2400	ERR
	5541	0	0	1	1200	0	0	0	0	0	0	0	0	0	0	1	1200	1200	ERR
	5521	0	0	1	13000	0	0	0	0	0	0	0	0	0	0	1	13000	13000	ERR
	5511	0	0	2	6360	0	0	0	0	0	0	0	0	0	0	2	6360	3180	15504000
	4512	0	0	1	240	0	0	0	0	0	0	0	0	0	0	1	240	240	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	25	65370	1	120	0	0	0	0	0	0	0	0	26	65490		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 1			
SIC :		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	1	60	1	60	60	EFF
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	7538	0	0	19	18695	2	1940	0	0	1	50	0	0	0	0	19785	899	1274077	
	7536	0	0	0	4720	0	0	0	0	0	0	0	0	0	0	4720	1570	19550	
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	7512	0	0	1	3000	0	0	0	0	0	0	0	0	1	200	2	3200	1600	3920000
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	5571	0	0	1	200	1	2	0	0	0	0	0	0	0	0	202	101	1967	
	5559	1	400	0	0	1	5	0	0	0	0	0	0	0	0	405	200	78012	
	5541	0	0	0	7000	0	0	0	0	0	0	0	0	0	0	7000	233	95000	
	5521	0	0	5	2796	1	400	0	0	0	0	0	0	0	0	2896	555	15156	
	5511	0	0	0	12740	0	0	0	0	0	0	0	0	0	0	12740	2290	14797200	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	4469	0	0	1	150	2	70	0	0	0	0	0	0	0	0	220	70	4500	
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	3594	0	0	3	2605	0	0	0	0	0	0	0	0	0	0	3	2605	868	1996808
Totals		1	400	42	52906	7	1517	0	0	1	50	0	0	2	260	53	55133		
REGION P	7542	0	0	1	2400	0	0	0	0	0	0	0	0	0	0	1	2400	2400	EFF
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	7538	0	0	3	815	0	0	3	1270	0	0	0	0	4	1085	10	3170	317	50170
	7536	0	0	1	1200	0	0	0	0	0	0	0	0	0	0	1	1200	1200	EFF
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	7512	0	0	2	2650	0	0	0	0	0	0	0	0	0	0	2	2650	1325	2311250
	5926	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	EFF
	5571	0	0	1	600	0	0	0	0	0	0	0	0	0	0	1	600	600	EFF
	5559	0	0	0	0	0	0	0	0	0	0	0	0	1	120	1	120	120	EFF
	5541	0	0	1	1500	1	1200	0	0	0	0	0	0	0	0	2	2700	1350	45000
	5521	0	0	2	2280	1	220	0	0	0	0	0	0	0	0	3	2500	833	285733
	5511	0	0	1	1200	0	0	0	0	0	0	0	0	0	0	1	1200	1200	EFF
	4512	0	0	1	90	0	0	0	0	0	0	0	0	0	0	1	90	90	EFF
	4469	0	0	0	0	1	480	0	0	0	0	0	0	0	0	1	480	480	EFF
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	3594	0	0	0	0	1	40	0	0	0	0	0	0	0	0	1	40	40	EFF
Totals		0	0	14	13135	4	1940	3	1270	0	0	0	0	5	1205	26	17550		
EXAMPLE TOTALS	7542	0	0	1	2400	0	0	0	0	0	0	0	0	1	60	2	2460	1230	2237800
	7539	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	EFF
	7538	1	540	63	70936	7	1356	5	2970	1	50	0	0	4	1085	81	76937	950	1995801
	7536	0	0	9	14240	0	0	0	0	0	0	0	0	0	0	9	14240	1582	1186844
	7535	0	0	2	6000	0	0	0	0	0	0	0	0	0	0	2	6000	3000	6480000
	7512	0	0	6	6450	1	800	0	0	0	0	0	0	1	200	8	7450	931	1260670
	5926	0	0	2	650	0	0	0	0	0	0	0	0	0	0	2	650	325	11250
	5571	0	0	3	1800	1	2	0	0	0	0	0	0	1	36	5	1838	368	181413
	5559	2	530	2	3000	1	5	0	0	0	0	0	0	1	120	6	3655	609	816964
	5541	1	100	8	11600	1	1200	0	0	0	0	0	0	0	0	10	12900	1290	718778
	5521	2	1400	10	19076	2	620	0	0	0	0	0	0	0	0	14	21096	1507	11114744
	5511	0	0	15	51400	0	0	0	0	0	0	0	0	0	0	15	51400	3427	16936538
	4512	1	80	2	350	0	0	0	0	0	0	0	0	0	0	2	430	177	8017
	4469	0	0	1	150	5	600	0	0	0	0	0	0	0	0	6	750	125	32817
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EFF	EFF
	3594	0	0	4	3295	1	40	0	0	0	0	0	0	1	50	6	3295	549	962041
Totals		7	2650	129	191257	19	4624	5	2970	1	50	0	0	9	1551	170	203102		

DISPOSAL METHOD		0		1		2		3		4		5		6		TOTALS WASTE TYPE 2			
SIC :		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION N	7542	0	0	2	1700	0	0	0	0	0	0	0	0	0	0	2	1700	850	45000
	7539	0	0	0	0	0	0	0	0	0	0	0	0	1	30	1	30	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	2	20	2	20	ERR	ERR
	7536	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	3	2100	0	0	0	0	0	0	0	0	3	50	6	2150		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	1	500	0	0	0	0	0	0	0	0	0	0	1	500	500	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	1	500	0	0	0	0	0	0	0	0	0	0	1	500		
REGION Q	7542	0	0	4	4100	0	0	0	0	0	0	0	0	0	0	4	4100	1025	462500
	7539	0	0	0	0	0	0	0	0	0	0	0	0	1	30	1	30	ERR	ERR
	7538	0	0	2	900	0	0	0	0	0	0	0	0	2	20	4	920	230	146200
	7536	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	200	0	0	0	0	0	0	0	0	0	0	1	200	200	ERR
	5521	2	110	0	0	0	0	0	0	0	0	0	0	0	0	2	110	55	4050
	5512	0	0	3	610	0	0	0	0	0	0	0	0	0	0	3	610	203	68000
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		2	110	11	6210	0	0	0	0	0	0	0	0	3	50	16	6570		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 3			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22	22	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22		
SAMPLE TOTALS	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22	22	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 4			
SIC :		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION K	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	1	200	0	0	0	0	0	0	0	0	0	0	1	200	200	ERR
	7538	0	0	0	0	3	90	0	0	0	0	0	0	0	0	6	270	62	4777
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	1	100	0	0	0	0	0	0	0	0	0	0	0	0	62	3	162	54
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	100	1	200	3	90	0	0	0	0	0	0	5	342	10	732		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	1	300	0	0	0	0	0	0	2	400	3	700	233	3333
	7538	1	100	0	0	1	96	0	0	0	0	0	0	5	940	7	1136	162	38277
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	200	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	250	1	96	0	0	0	0	0	0	1	180	3	526	175	5945
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	1	500	0	0	0	0	0	0	0	0	1	500	2	1000	500	0
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	100	2	750	3	492	0	0	0	0	0	0	10	2020	16	3562		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	1	200	0	0	0	0	0	0	0	0	1	200	200	ERR
	7538	0	0	2	140	1	80	0	0	0	0	0	0	4	795	7	1015	145	14058
	7536	0	0	0	0	0	0	0	0	0	0	0	0	1	120	1	120	120	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	1	24	1	24	24	ERR
	7512	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100	100	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	1	120	0	0	0	0	0	0	0	0	0	0	1	120	120	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	5	410	2	280	0	0	0	0	0	0	6	939	13	1629		

WASTE DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 4			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
SESSION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	3	2760	3	2760	920	113200
	7538	0	0	1	160	1	50	0	0	0	0	0	0	4	462	3	672	96	9900
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	354	2	354	177	10650
	5521	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	100	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	3	1000	3	1000	333	20800
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	24	ERR
Totals		0	0	2	160	1	50	0	0	1	24	0	0	13	4676	17	4910		
SESSION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	3	660	3	660	220	59200
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	2	34	2	34	17	96
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	100	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	3	794	6	794		
SAMPLE TOTALS	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	1	200	2	500	0	0	0	0	0	0	5	3150	8	3860	483	164750
	7538	1	100	4	300	6	310	0	0	0	0	0	0	15	3137	30	3850	128	20170
	7536	0	0	0	0	0	0	0	0	0	0	0	0	1	120	1	120	120	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	1	24	1	24	24	ERR
	7512	0	0	1	100	0	0	0	0	0	0	0	0	3	234	4	334	84	7596
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	250	1	96	0	0	0	0	0	0	3	554	5	880	176	5638
	5521	1	100	0	0	0	0	0	0	0	0	0	0	4	262	5	362	72	1600
	5511	0	0	2	620	0	0	0	0	0	0	0	0	4	1500	6	2120	353	28000
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	24	ERR
Totals		2	200	10	1520	9	910	0	0	1	24	0	0	40	6071	62	11627		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 5			
SIC :		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION Y	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	12	784	0	0	0	0	12	784	55	6418
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	1	120	0	0	0	0	1	120	120	ERR
	5926	0	0	0	0	0	0	0	0	1	1000	0	0	0	0	1	1000	1000	ERR
	5571	0	0	0	0	1	5	0	0	0	0	0	0	0	0	1	5	5	ERR
	5559	0	0	1	250	0	0	0	0	0	0	0	0	0	0	1	250	250	ERR
	5541	0	0	0	0	0	0	0	0	1	12	0	0	0	0	1	12	12	ERR
	5521	1	100	0	0	0	0	0	0	2	107	0	0	0	0	2	107	69	2882
	5511	0	0	0	0	0	0	0	0	2	120	0	0	0	0	2	120	65	6050
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	1	10	0	0	0	0	1	10	10	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	100	1	250	1	5	0	0	20	4162	0	0	0	0	23	4516		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	21	1475	0	0	0	0	21	1475	70	3735
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	1	100	0	0	0	0	0	0	1	25	0	0	0	0	2	125	63	2813
	5926	0	0	0	0	0	0	0	0	1	1000	0	0	0	0	1	1000	1000	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	1	50	0	0	0	0	1	50	50	ERR
	5541	0	0	0	0	0	0	0	0	3	210	0	0	0	0	3	210	70	700
	5521	1	48	0	0	0	0	0	0	0	0	0	0	0	0	1	48	48	ERR
	5511	0	0	0	0	0	0	0	0	4	492	0	0	0	0	4	492	123	4175
	4512	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2	1	ERR
	4469	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	24	ERR
Totals		3	148	0	0	1	2	0	0	32	3276	0	0	0	0	36	3428		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	13	1336	0	0	0	0	13	1336	103	5588
	7536	0	0	0	0	0	0	0	0	1	48	0	0	0	0	1	48	48	ERR
	7535	0	0	0	0	0	0	0	0	2	960	0	0	0	0	2	960	480	28800
	7512	0	0	0	0	0	0	0	0	1	20	0	0	0	0	1	20	20	ERR
	5926	0	0	0	0	0	0	0	0	1	120	0	0	0	0	1	120	120	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	100	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	1	240	1	240	240	ERR
	5541	0	0	0	0	0	0	0	0	1	60	0	0	0	0	1	60	60	ERR
	5521	0	0	0	0	0	0	0	0	1	260	0	0	0	0	1	260	260	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	1	30	0	0	0	0	1	30	30	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	21	2874	0	0	2	340	23	3174		

DISPOSAL METHOD	0	1		2		3		4		5		6		TOTALS WASTE TYPE 5			
		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION A	7540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7543	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7547	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7548	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7549	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7551	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7552	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7554	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7555	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7557	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7558	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7561	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7562	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7563	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7564	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	1	10	0	0	40	3711	0	0	1	20	42	3741
REGION P	7540	0	0	0	0	0	0	0	0	1	240	0	0	0	0	240	ERR
	7541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7542	1	0	0	0	0	0	0	0	8	374	0	0	1	75	10	429
	7543	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7546	0	0	0	0	0	0	0	0	2	169	0	0	0	0	2	169
	7547	0	0	0	0	0	0	0	0	1	20	0	0	0	1	20	ERR
	7548	0	0	0	0	0	0	0	0	1	65	0	0	0	1	65	ERR
	7549	0	0	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	7550	0	0	0	0	0	0	0	0	2	80	0	0	0	2	80	40
	7551	0	0	0	0	0	0	0	0	2	70	0	0	0	2	70	35
	7552	0	0	0	0	0	0	0	0	1	40	0	0	0	1	40	40
	7553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7554	0	0	0	0	0	0	0	0	1	250	0	0	0	1	250	250
	7555	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7557	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7558	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	20	0	0	0	0	0	0	19	1265	0	0	2	95	22	1287
REGION Q	7540	0	0	0	0	0	0	0	0	1	240	0	0	0	0	240	ERR
	7541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7542	1	0	0	0	0	0	0	0	71	5276	0	0	2	95	74	5393
	7543	0	0	0	0	0	0	0	0	2	98	0	0	0	2	98	49
	7544	0	0	0	0	0	0	0	0	2	960	0	0	0	2	960	480
	7545	1	100	0	0	0	0	0	0	6	374	0	0	0	7	474	68
	7546	0	0	0	0	0	0	0	0	6	4740	0	0	0	6	4740	790
	7547	0	0	0	0	0	0	0	0	2	95	0	0	1	100	4	200
	7548	0	0	1	250	1	10	0	0	2	60	0	0	2	260	6	580
	7549	0	0	0	0	0	0	0	0	10	1192	0	0	0	10	1192	119
	7550	2	140	0	0	0	0	0	0	10	719	0	0	0	12	867	72
	7551	0	0	0	0	0	0	0	0	12	1092	0	0	0	12	1092	91
	7552	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7554	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7555	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7557	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7558	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		5	260	1	250	2	10	0	0	132	15252	0	0	5	455	146	16244

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 6			
SIC :		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	2	22	2	22	11	2
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	200	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3717	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	3	222	3	222		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3717	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10	10	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10		
REGION Q	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	100	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	1	50	2	22	3	72	24	508
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	200	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	200	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3717	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10	10	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	1	50	6	532	7	562		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 7			
SIC :		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		Avg	Var
FEEDON V	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	5	165	0	0	1	45	0	0	2	20	0	0	8	230	29	563
	7536	0	0	1	500	0	0	0	0	0	0	0	0	0	1	500	500	ERR	ERR
	7535	0	0	0	0	0	0	1	15	0	0	2	55	1	50	4	120	30	375
	7512	0	0	1	10	0	0	0	0	0	0	0	0	0	1	10	10	ERR	ERR
	5926	0	0	1	120	0	0	0	0	0	0	0	0	0	1	120	120	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	1	50	0	0	0	0	0	0	0	0	0	1	50	50	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	1	30	0	0	0	0	0	0	0	0	0	0	0	1	30	30	ERR	ERR
	5511	1	45	1	174	0	0	0	0	0	0	0	0	0	2	219	110	8021	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	1	30	0	0	0	0	0	0	0	1	30	30	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		2	75	10	1019	1	30	2	60	0	0	4	75	1	60	20	1319		
FEEDON L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	24	13	951	0	0	0	0	0	0	1	2	1	20	16	997	62	2446
	7536	0	0	1	130	0	0	0	0	0	0	0	0	0	1	130	130	ERR	ERR
	7535	1	60	2	240	0	0	0	0	0	0	1	24	1	48	5	372	74	3701
	7512	1	50	1	100	0	0	0	0	0	0	0	0	0	2	150	75	1250	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	5	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	2	210	0	0	0	0	0	0	0	0	0	2	210	105	11250	
	5521	1	48	0	0	0	0	0	0	0	0	0	0	0	1	48	48	ERR	ERR
	5511	0	0	5	3250	0	0	0	0	0	0	0	0	0	5	3250	650	630700	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	1	12	0	1	12	12	ERR	ERR
	2594	0	0	1	60	0	0	0	0	0	0	0	0	0	1	60	60	ERR	ERR
Totals		4	182	25	4941	0	0	0	0	0	0	3	75	2	73	35	5234		
FEEDON H	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	6	1055	1	30	0	0	0	0	0	0	1	10	10	1095	110	9187
	7536	0	0	1	150	0	0	0	0	0	0	0	0	0	1	150	150	ERR	ERR
	7535	0	0	1	200	0	0	0	0	0	0	0	0	0	1	200	200	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	120	0	0	0	0	0	0	0	0	0	1	120	120	ERR	ERR
	5559	1	40	0	0	0	0	0	0	0	0	0	0	0	1	40	40	ERR	ERR
	5541	0	0	1	120	0	0	0	0	0	0	0	0	0	1	120	120	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	1	36	0	1	36	36	ERR	ERR
	5511	0	0	2	300	0	0	0	0	0	0	0	0	0	2	300	150	1800	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	40	14	1945	1	30	0	0	0	0	1	36	1	10	15	2051		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 7			
SIC :		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	9	647	1	56	0	0	1	87	0	0	0	0	11	784	71	6516
	7536	0	0	4	734	0	0	0	0	0	0	0	0	0	0	4	734	184	16687
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	78	59	162
	7512	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	45	0	0	0	0	0	0	0	0	0	0	1	45	45	ERR
	5569	0	0	1	117	0	0	0	0	0	0	0	0	0	0	2	117	59	1625
	5541	0	0	2	177	0	0	0	0	0	0	0	0	0	0	2	177	89	5
	5521	0	0	4	217	0	0	0	0	0	0	0	0	0	0	5	227	45	866
	5511	0	0	1	150	0	0	0	0	0	0	0	0	0	0	3	230	77	8008
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	2	109	0	0	0	0	0	0	0	0	0	0	2	109	55	2110
	3713	0	0	0	0	1	20	0	0	0	0	0	0	0	0	1	20	20	ERR
	3594	0	0	2	390	0	0	0	0	0	0	0	0	0	0	2	390	195	48050
Totals		0	0	28	2666	2	76	0	0	1	87	2	78	0	60	36	2961		
REGION P	7542	0	0	1	24	0	0	0	0	0	0	0	0	0	0	1	24	24	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	4	372	0	0	0	0	0	0	0	0	0	240	7	612	87	3181
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	1	60	1	50	0	0	0	0	0	0	1	120	3	230	77	1433
	7512	0	0	2	710	0	0	0	0	0	0	0	0	0	0	2	710	355	18050
	5926	0	0	1	24	0	0	0	0	0	0	0	0	0	0	1	24	24	ERR
	5571	0	0	1	60	0	0	0	0	0	0	0	0	0	0	1	60	60	ERR
	5569	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	1	120	0	0	0	0	0	0	1	120	120	ERR
	5521	1	12	0	0	0	0	0	0	0	0	0	0	0	0	1	12	12	ERR
	5511	0	0	1	30	0	0	0	0	0	0	0	0	0	0	1	30	30	ERR
	4512	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	4469	0	0	0	0	1	60	0	0	0	0	0	0	0	0	1	60	60	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10	10	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	12	12	1300	2	110	1	120	0	0	0	0	5	370	21	1912		
REGION Q	7542	0	0	1	24	0	0	0	0	0	0	0	0	0	0	1	24	24	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	24	39	3190	1	80	1	45	1	57	2	22	5	270	50	3718	72	4793
	7536	0	0	7	1514	0	0	0	0	0	0	0	0	0	0	7	1514	216	24447
	7535	1	60	4	500	1	50	1	15	0	0	5	157	3	228	15	1010	67	3109
	7512	1	50	5	670	0	0	0	0	0	0	0	0	0	0	6	920	153	28827
	5926	0	0	2	144	0	0	0	0	0	0	0	0	0	0	2	144	72	4608
	5571	0	0	3	225	0	0	0	0	0	0	0	0	1	5	4	230	58	2275
	5569	1	40	3	167	0	0	0	0	0	0	0	0	0	0	4	207	52	619
	5541	0	0	5	507	0	0	1	120	0	0	0	0	0	0	6	627	105	2450
	5521	2	90	4	217	0	0	0	0	0	0	0	0	1	10	9	353	39	571
	5511	1	45	10	3924	0	0	0	0	0	0	0	0	1	50	10	4029	310	291689
	4512	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	4469	0	0	2	109	1	60	0	0	0	0	0	0	0	0	4	199	50	884
	3713	0	0	0	0	1	20	0	0	0	0	1	10	1	10	3	42	14	20
	3594	0	0	2	450	0	0	0	0	0	0	0	0	0	0	3	450	150	30100
Totals		8	309	89	11871	6	240	3	180	1	87	10	227	17	573	130	13497		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 8			
SIC :		#	Dty	#	Dty	#	Dty	#	Dty	#	Dty	#	Dty	#	Dty	#	Dty	Avg	Var
SECTION A																			
7542		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7539		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7538		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7536		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7535		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7512		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5926		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5571		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5559		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5541		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5521		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5511		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
4512		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
4469		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
3713		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
2594		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SECTION L																			
7542		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7539		0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100	100	ERR
7538		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7536		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7535		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7512		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5926		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5571		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5559		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5541		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5521		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5511		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
4512		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
4469		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
3713		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
2594		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100		
SECTION M																			
7542		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7539		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7538		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7536		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7535		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
7512		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5926		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5571		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5559		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5541		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5521		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
5511		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
4512		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
4469		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
3713		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
2594		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

ELEMENTAL METHOD 1		0		1		2		3		4		5		6		TOTALS WASTE TYPE 8			
SIC 1		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	1	350	0	0	0	0	0	0	0	0	0	0	1	350	350	ERR
Totals		0	0	1	350	0	0	0	0	0	0	0	0	2	370	3	720		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
Totals		0	0	2	800	0	0	0	0	0	0	0	0	0	0	2	800		
REGION Q	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	2	500	0	0	0	0	0	0	0	0	0	0	2	500	500	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	2	750	0	0	0	0	0	0	0	0	0	0	2	750	750	ERR
Totals		0	0	4	1250	0	0	0	0	0	0	0	0	2	370	6	1620		

[illegible]

Appendix C-3

Waste Quantities Stored for Each
Geographic Region

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION K

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539	ERR	ERR	ERR	200	ERR	ERR	ERR	ERR	ERR
7538	181	ERR	ERR	42	31	ERR	11	ERR	ERR
7536	300	ERR	ERR	ERR	ERR	ERR	0	ERR	ERR
7535	ERR	ERR	ERR	ERR	ERR	10	3	ERR	ERR
7512	300	ERR	ERR	ERR	10	ERR	0	ERR	ERR
5926	ERR	ERR	ERR	ERR	30	ERR	30	ERR	ERR
5571	ERR	ERR	ERR	ERR	1	ERR	ERR	ERR	ERR
5559	200	ERR	ERR	ERR	150	ERR	25	ERR	ERR
5541	300	ERR	ERR	ERR	12	ERR	ERR	ERR	ERR
5521	200	0	ERR	2	7	ERR	0	ERR	ERR
5511	450	0	ERR	ERR	8	ERR	33	ERR	ERR
4512	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
4469	50	ERR	ERR	ERR	0	ERR	0	ERR	ERR
3713	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
3594	5	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

ERR No sample occurrences

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION L

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	ERR	1200	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539	ERR	ERR	ERR	0	ERR	ERR	ERR	45	ERR
7538	365	ERR	ERR	10	27	ERR	7	ERR	ERR
7536	237	ERR	ERR	ERR	ERR	ERR	15	ERR	ERR
7535	ERR	ERR	ERR	ERR	ERR	ERR	4	ERR	ERR
7512	150	ERR	ERR	0	100	ERR	30	ERR	ERR
5926	ERR	ERR	ERR	ERR	100	ERR	ERR	ERR	ERR
5571	0	ERR	ERR	ERR	ERR	ERR	0	ERR	ERR
5559	130	ERR	ERR	ERR	50	ERR	ERR	ERR	ERR
5541	250	0	ERR	0	5	ERR	8	ERR	ERR
5521	200	100	ERR	ERR	4	ERR	0	ERR	ERR
5511	506	ERR	ERR	1000	4	0	11	ERR	ERR
4512	135	ERR	ERR	ERR	0	ERR	ERR	ERR	ERR
4469	0	ERR	ERR	ERR	0	ERR	ERR	ERR	ERR
3713	ERR	ERR	ERR	ERR	ERR	ERR	0	ERR	ERR
3594	200	ERR	ERR	ERR	0	ERR	10	ERR	ERR

ERR No sample occurrences

service stations in the survey sample and the largest estimated provincial population. SIC 5511 generally had the highest average volumes of those waste types, with the exception of waste coolant for which radiator shops (SIC 7539) had the highest average.

4.1.2.2 Geographic Region

The survey results were extrapolated by region and waste type. The results of the estimates are summarized in Table 4.4. Regions 'L', 'M' and 'N' produced the largest estimated annual quantities of most waste types. This was probably due to the fact that the majority of the population of Ontario resides in these 3 regions. Regions 'K' and 'P' produced the lowest annual quantities of wastes. Annual estimates of wastewater from waste caustic cleaners and halogenated cleaners were poorly represented throughout all regions of Ontario. It should be noted that geographic regions which have no waste generation for some waste types (as shown in Table 4.4) are not likely representative. This is attributable to either the small sample for some service station types or the inability of the service station management to report waste quantities.

4.2 Other Sources of Waste Quantity Data

Several other sources of waste quantity data were identified and contacted as part of this study to obtain waste generation estimates. These organizations include:

1) Member Organizations

- i) Ontario Petroleum Association
- ii) National Automobile Radiation Association (NARSA)
- iii) Automobile Aftermarket Retailers of Ontario (AARO)
- iv) Thunder Bay Association of Automotive Trades

2) Waste Receivers/Haulers

- i) Can Am Oil (waste oil, interceptor sludges)
- ii) Canadian Oil (waste oil, interceptor sludges)
- iii) Safety Kleen (non-halogenated solvents)

4.2.1 Waste Oils

Two primary receivers of waste oils were identified in Ontario, namely:

- i) Can Am Oil Services, Division of Breslube Inc.
- ii) Canadian Oil Company

TABLE 4.4 ESTIMATED WASTE QUANTITIES FOR EACH POSTAL CODE REGION

POSTAL CODE REGION		K		L		M		N		P		ONTARIO	
WASTE TYPE	UNITS	Est. Quantity A	Est. Quantity B	Est. Quantity A	Est. Quantity B	Est. Quantity A	Est. Quantity B	Est. Quantity A	Est. Quantity B	Est. Quantity A	Est. Quantity B	Est. Quantity A	Est. Quantity B
1. Waste Oils	(l gal)	1086867	941735	3851014	3337076	4267704	3697454	3642809	3156205	979873	848908	13828268	11981379
2. Oil/Sludge From Interceptor	(l gal)	1390	1205	141225	122280	77100	62466	102284	88566	49286	42714	366285	317231
3. Gasoline Storage Tank Bottoms ‡	(l gal)	0	0	0	0	0	0	0	0	0	0	0	0
4. Waste Coolant	(l gal)	41816	36219	250278	216830	105153	91100	301008	260706	51904	44967	750159	649824
5. Waste Batteries	(each)	201845	174735	209653	181600	224532	194514	223650	193730	87334	75656	947614	820236
6. Waste Paint Filters	(lbs)	5050	4375	19714	17086	4838	4188	10311	8932	157	136	40070	34716
7. Non-Halogenated Solvents, Thinners	(l gal)	77226	63005	454316	393694	142082	123106	149995	129933	130383	112975	949502	822713
8. Caustic Cleaners	(l gal)	0	0	4838	4188	0	0	28649	24794	31636	27379	65122	56360
9. Halogenated Cleaners	(l gal)	0	0	0	0	0	0	14513	12563	0	0	14513	12563

‡ Gasoline storage tank bottom quantities not calculated due to insufficient survey data

Can Am estimated that they hold 70% of the service station waste oil recycling market in Ontario (D. Schofield, personal communication, 1987). This amounts to an estimated 10 million Igal/year of crankcase oil per year which when scaled up to 100% market share equals 14.3 million Igal/year. It should be noted that these quantities are only approximate and were only estimated by Can Am.

Canadian Oil estimated that service stations in Ontario produce approximately 12 million Igal/year of which they collect 1.5 million Igal/year (D. Fisher, personal communication, 1987).

It is evident that the estimated province wide generation of waste oil estimated by Can Am and Canadian Oil agree quite well with each other and with the quantity estimated in this study, suggesting that these quantities are probably reliable.

In a similar study conducted for OWMC, CANVIRO (1988) estimated that approximately 10 million Igal/year of waste oil are produced by the Non-Industrial sector in Ontario. This quantity is slightly lower than estimated in the current study but is of similar magnitude.

4.2.2 Interceptor Wastes

Can Am and Canadian Oil are also major receivers as well as haulers for service station interceptor wastes (Can Am is reportedly the largest receiver in the province (D. Schofield, personal communication, 1987)). Can Am estimates that they clean-out approximately 125 interceptors per month each with an average waste volume of 700 Igal. This amounts to 1,050,000 Igal annually. The wastes contain primarily water with an estimated 1.0% oil (10,500 Igal/year). Approximately 48,000 Igal/year of oil are generated from the treatment of interceptor wastes at Can Am's Toronto facility which receives wastes from other than the service station sector.

Canadian Oil estimates that they collect between 700 and 1100 Igal/year from each of the 300 service stations that they serve (D. Fisher, personal communication, 1987). This represents an average of 270,000 Igal/year of interceptor wastes collected by Canadian Oil.

The total quantity of interceptor wastes generated in Ontario can also be estimated by assuming that each interceptor is cleaned out on an annual basis. Given the population estimates A and B, the SIC categories which produce interceptor wastes and an average volume/year/clean-out based on only those businesses reporting a waste quantity, the waste quantities in Table 4.5 can be derived. These estimated quantities are much higher than the total reported by individual generators and probably provides an upper limit on the quantity of interceptor wastes generated annually province wide.

The larger quantities estimated by this method may suggest that all interceptors are not cleaned out annually, that all businesses do not have interceptors, or that the average quantity calculated per clean-out is high. Alternatively, other sources of waste quantity may be low.

Table 4.5
ESTIMATED QUANTITIES OF INTERCEPTOR WASTES
GENERATED IN ONTARIO

SIC	Estimated Population A	Estimated Population B	Average Quantity* (Igal/year)	Estimated Quantity A (Igal)	Estimated Quantity B (Igal)
7452	477	413	1025	488,925	423,325
7539	387	335	30	11,610	10,050
7538	5671	4913	230	1,304,330	1,129,990
7536	187	162	400	74,800	64,800
5541	2545	2204	200	509,000	440,800
5521	1092	946	55	60,060	52,030
5511	1380	1196	203	280,140	242,788
Totals				2,728,865	2,363,783

Notes: * Average quantity (estimated quantities assume 100% of population are waste generators).

1 Only SIC categories who reported having interceptor wastes were included in the above estimate.

4.2.3 Gasoline Storage Tank Bottoms

The Ontario Petroleum Association (OPA) was contacted by CANVIRO personnel and was able to provide estimates of tank bottom quantities for their member companies. The OPA is comprised of eight major gasoline suppliers which represents a major although unquantified share of the gasoline supply market.

Table 4.6 summarizes the information provided by OPA (1987). OPA members are estimated to collect 20 Igal from each of 700 tanks resulting in an average volume of 15,400 Igal/year. It should be noted that the number of tanks cleaned out per year is far less than the number of businesses selling fuel (4800 to 5400) suggesting that fuel tanks are cleaned on an infrequent basis (ie. approximately every 6 to 8 years). Estimates of tank bottoms collected from main terminals and small bulk plants were also provided although these quantities are not particularly relevant to this study.

Table 4.6
ESTIMATED ANNUAL QUANTITY OF GASOLINE STORAGE TANK
BOTTOMS COLLECTED BY OPA MEMBERS (OPA, 1987)

	Estimate of # of Tanks Cleaned Annual	Estimate of Volume Removed per Tank	Estimate of Total Annual Volume Collected
Main Terminals	30 tanks	375 Igal	11,215 Igal
Small Bulk Plants	200 tanks	45 Igal	8,800 Igal
Service Stations	<u>700 tanks</u>	<u>20 Igal</u>	<u>15,400 Igal</u>
Total	930 tanks	440 Igal	35,415 Igal

4.2.4 Waste Coolant

The National Automotive Radiator Service Association (NARSA) was helpful in identifying waste types produced by radiator shops and the usual fate of those wastes (M. Hribar, personal communication, 1987). However, estimated waste quantities of coolant and cleaners used in radiator shops could not be provided by NARSA.

4.2.5 Waste Batteries

The Canadian Association of Recycling Industries (CARI) was contacted in an effort to obtain estimated quantities of waste batteries generated per year in Ontario (R. Graham, personal communication, 1988). Although large receivers were identified (ie. Toronto Refiners and Smelters, Canada Metal and Tonolli), CARI could not furnish quantity estimates. CARI suggested that due to the nature of the scrap metal business in Ontario, which sees many small collectors and many waste batteries changing hands several times prior to recycling, no reliable quantities could be estimated at this time.

4.2.6 Waste Paint Sludge/Filters

CANVIRO (1988) estimated that approximately 103,000 lbs/year of Ignitable Paint Waste is generated by vehicle maintenance activities in Ontario. This quantity is far higher than estimated in this current study, reflecting the uncertainty in the reported waste generation rates. The waste quantity of 103,000 lbs/year is considered as an upper limit for this waste type.

4.2.7 Non-Halogenated Cleaners, Thinners and Solvents

Safety Kleen Canada Ltd. was identified as a major supplier, hauler and receiver of waste solvents (primarily waste naphtha petroleum) and other cleaning products in the service station sector. Safety Kleen's services include providing

solvents for parts cleaners, etc., and periodically picking up the spent solvent for recycling at their U.S. based solvent reprocessing facilities. Safety Kleen representatives were able to estimate that they collect 744,000 lgal/year of spent non-halogenated solvents, primarily waste naptha petroleum (K. Coffin, personal communication, 1987). No estimate of market share could be provided although the majority of survey respondents dealt with Safety Kleen for solvents. Therefore, the quantity of waste solvent collected by Safety Kleen is considered very likely to represent a large as yet unquantified, portion of the non-halogenated waste solvent generated in the province.

The estimate of the portion of non-halogenated solvents collected by Safety Kleen was obtained from the survey responses to product type. Safety Kleen's services were used by 48% of the respondents, Can Am's services were used by 28% and no hauler/receiver was reported by the remaining respondents. An estimated province wide quantity of waste solvents of 1,550,000 lgal/year is obtained by dividing the Safety Kleen volume of 744,000 by 48%. This estimate is likely an upper limit on non-halogenated waste generation.

CANVIRO (1988) estimated that approximately 900,000 lgal/year of spent solvents are produced through vehicle maintenance activities in Ontario. This quantity agrees well with the quantities determined in this study by extrapolation.

4.2.8 Waste Caustic

Waste caustic was found to be generated by two main service stations types: (i) radiator shops and (ii) engine rebuilding shops. These wastes are typically discharged to sanitary sewers following neutralization with caustic.

Strong acid and alkalis quantities were reported as approximately 250,000 lgal/year for vehicle maintenance activities in the province (CANVIRO, 1988). This quantity is somewhat higher than estimated in this study, possibly due to the inclusion of acids as opposed to solely caustics (ie. alkalies). This quantity may be viewed as an upper limit.

4.2.9 Halogenated Waste Cleaners

No other source of waste quantities could be obtained for this waste.

4.3 Evaluation of Waste Estimates

Estimated annual quantities of wastes produced from the survey were evaluated and compared to waste estimates obtained from waste receivers to provide a measure of the reliability of the estimated waste quantities.

4.3.1 Waste Oils

The extrapolated estimates of waste oils produced annually from retail service stations in Ontario appear to be the most accurate of any waste type when compared to waste oil receiver estimates (Table 4.7). Both of the CANVIRO estimates of waste oils produced annually of 13,828,268 and 11,981,379 Igal/year were relatively close to the two industry estimates of 14,285,700 and 12,000,000 Igal, as well as that of CANVIRO (1988). The good agreement obtained for the estimated waste quantities is attributed to better record keeping by service station operators for this waste type. This likely occurred due to the higher number of written waste hauler agreements for this waste type.

4.3.2 Interceptor Wastes

The estimated annual quantities of waste oil/sludge/water from interceptors in Ontario were found to be very low compared to Can Am's estimate (Can Am, 1987). CANVIRO's high estimate was 366,285 Igal of waste compared to Can Am's (1987) estimate of 1,050,000 Igal which is only the interceptor waste received by that one company. Most service stations with interceptors/separators did not provide even a 'guess' as to the quantity of waste oil/sludges produced per year. Therefore it is likely that quantities of waste oil/sludge/water extrapolated from the survey results are low. It is estimated that the actual quantity of this waste generated in Ontario is between the total reported by the receivers contacted (1,320,000 Igal) and that estimated based on average annual clean-outs for each SIC (2,390,590 to 2,758,770 Igal/year).

4.3.3 Gasoline Storage Tank Bottoms

The Ontario Petroleum Association estimated its member companies collected 15,400 gallons of wastewater annually from underground gasoline storage tanks from retail service stations in Ontario (from OPA members). CANVIRO did not estimate a quantity for this waste because of insufficient survey data. Service stations with active, underground gasoline storage tanks ('active' meaning they were still being used for gasoline storage) generally responded that they either did not have any wastewaters from their gasoline storage tanks or that they did not know what quantity of wastewater they produced from their storage tanks per year. The disposal of tank bottoms from gasoline storage tanks at retail service stations is reportedly the responsibility of the gasoline supply company. Disposal of this waste is generally conducted with minimal involvement by the service station manager/attendant which explains the limited amount of waste quantity data obtained for this waste type during the survey.

Table 4.7
COMPARISON OF WASTE QUANTITY ESTIMATES

Waste Type	Units	Estimate A (Rounded to Hundreds)	Estimate B (to Hundreds)	Accepted by Individual Receivers	Province Wide Waste, Generation ²	Source	Comments
1. Waste Oil	Igal	13,828,268	11,981,379	10,000,000 1,500,000	14,285,700 NA	Can Am (1987) Canadian Oil (1987)	Reported 70% market share
				NA	12,000,000	Canadian Oil (1987)	Estimated from sales of used oil
					10,000	CANVIRO (1988)	
2. Interceptor Wastes	Igal	366,285	317,231	1,050,000 270,000	NA NA	Can Am (1987) Canadian Oil (1987)	Estimated 1% oil
				NA	2,390,590 - 2,758,770		Upper limit (see Section 4.2.2)
3. Gasoline Storage Tank Bottoms	Igal	NC	NC	15,400	NA	OPA (1987)	Represents large market share
4. Waste Coolant	Igal	750,159	649,824	NA	NA	-	-
5. Waste Batteries	each	947,014	820,236	NA	NA	-	-
6. Waste Paint Sludge/ Filters	lbs	40,070	34,716	NA	103,000	CANVIRO (1988)	-
7. Non-halogenated Cleaners, Thinners	Igal	949,502	822,713	744,000	NA	Safety Kleen (1987)	Represents large market share (see Section 4.2.7)
				NA	1,550,000 900,000	CANVIRO (1988)	Upper limit (see Section 4.2.7)
8. Waste Caustic	Igal	65,122	56,360	NA	250,000	CANVIRO (1988)	-
9. Halogenated Cleaners	Igal	14,513	12,563	NA	NA	-	-

NC - Not calculated due to insufficient responses.
NA - No estimate available.

- 1 - Actual quantities of waste accepted by individual receivers (see Section 4.2).
2 - Extrapolated provincial quantities from receiver quantities and respective market shares (see Section 4.2).

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION M

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539	20	ERR	ERR	50	ERR	0	ERR	ERR	ERR
7538	357	700	ERR	4	10	ERR	19	ERR	ERR
7536	200	ERR	ERR	0	0	ERR	50	ERR	ERR
7535	300	ERR	ERR	0	40	ERR	25	ERR	ERR
7512	200	ERR	ERR	200	0	ERR	ERR	ERR	ERR
5926	500	ERR	ERR	ERR	3	ERR	ERR	ERR	ERR
5571	200	ERR	ERR	0	20	ERR	10	ERR	ERR
5559	200	ERR	ERR	ERR	20	ERR	0	ERR	ERR
5541	200	ERR	ERR	ERR	5	ERR	20	ERR	ERR
5521	500	ERR	ERR	ERR	20	ERR	0	ERR	ERR
5511	375	0	ERR	60	ERR	ERR	30	ERR	ERR
4512	240	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
4469	ERR	ERR	ERR	ERR	30	ERR	ERR	ERR	ERR
3713	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
3594	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

ERR No sample occurrences

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION M

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	60	850	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539	ERR	0	ERR	0	ERR	ERR	ERR	105	300
7538	400	0	ERR	10	19	ERR	16	ERR	ERR
7536	500	400	ERR	ERR	3	ERR	63	ERR	ERR
7535	ERR	ERR	ERR	ERR	ERR	0	0	ERR	ERR
7512	273	ERR	ERR	ERR	0	ERR	10	ERR	ERR
5926	ERR	ERR	ERR	ERR	15	ERR	ERR	ERR	ERR
5571	101	ERR	ERR	ERR	30	ERR	45	ERR	ERR
5559	103	ERR	ERR	ERR	1	ERR	0	ERR	ERR
5541	340	ERR	ERR	0	73	ERR	50	ERR	ERR
5521	191	ERR	ERR	0	7	0	7	ERR	ERR
5511	692	ERR	ERR	0	9	ERR	30	ERR	ERR
4512	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
4469	65	ERR	ERR	ERR	12	ERR	16	ERR	ERR
3713	ERR	ERR	ERR	ERR	5	ERR	10	ERR	ERR
3594	240	ERR	ERR	0	ERR	ERR	195	350	ERR

ERR No sample occurrences

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION P

WASTE TYPE :	1	2	3	4	5	6	7	8	9 :
UNITS :	lgal	lgal	lgal	lgal	each	lbs	lgal	lgal	lgal :
SIC 7542 :	400	ERR	ERR	ERR	50	ERR	4	ERR	ERR :
7539 :	ERR	ERR	ERR	ERR	ERR	ERR	ERR	400	ERR :
7538 :	193	ERR	ERR	0	41	ERR	9	ERR	ERR :
7536 :	500	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR :
7535 :	ERR	ERR	ERR	ERR	ERR	ERR	22	ERR	ERR :
7512 :	500	ERR	ERR	0	6	ERR	55	ERR	ERR :
5926 :	200	ERR	ERR	ERR	20	ERR	12	ERR	ERR :
5571 :	500	ERR	ERR	ERR	20	ERR	5	ERR	ERR :
5559 :	45	ERR	ERR	ERR	0	ERR	ERR	ERR	ERR :
5541 :	273	ERR	0	ERR	5	ERR	45	ERR	ERR :
5521 :	135	ERR	ERR	0	3	ERR	0	ERR	ERR :
5511 :	200	120	ERR	ERR	0	ERR	0	ERR	ERR :
4512 :	45	ERR	ERR	ERR	ERR	ERR	10	ERR	ERR :
4469 :	40	ERR	ERR	ERR	300	ERR	10	ERR	ERR :
3713 :	ERR	ERR	ERR	ERR	ERR	0	10	ERR	ERR :
3594 :	45	ERR	ERR	ERR	ERR	ERR	ERR	400	ERR :

ERR No sample occurrences

Appendix C-4

Extrapolated Waste Quantities for
Each Geographic Region

Appendix D

D-1 Coding Description

D-2 Basic Company Information - Survey Database

D-3 Basic Company Information - Unused and
Non-Responding Service Stations

Appendix D-1

Coding Description

CON	PS#	SIC	NAME	ADDRESS	CITY	PR	PCDE	PHONE	RE	FUEL SALES BRANCH	UML	LEA	DIE	PRO	PT	FT	PT	OTHER SIC NUMBERS PER POLK PRINTOUT	TEL	MC	MI	MA	MP	CONTACT PERSON					
										FUEL SALES (by 1 sold)																			
										Unleaded																			
										Leaded																			
										Diesel																			
										Propane																			
										NUMBER OF EMPLOYEES																			
										Full time																			
										Part time																			
										PRIMARY STANDARD INDUSTRIAL CODE (SIC)																			
										PAGE NUMBER from Polk easterlist																			
										SECONDARY SIC CODES																			
										As per Polk easterlist																			
										RESPONSE CODE																			
										0. Not interested																			
										1. Out of business/Not in business/Not required																			
										2. Moved																			
										3. Address information incomplete as per Polk																			
										4. Questionnaire response by mail																			
										5. No response from mail/Information from phone interview																			
										6. New location picked																			
										7. Onsite visit																			
										NUMBER OF CALLS MADE																			
										TELEPHONE CALL CODE																			
										0. No call made																			
										1. Correct person contacted (All information obtained)																			
										2. Correct person contacted (Not interested)																			
										3. Number does not exist/No number found																			
										4. Not needed																			

Appendix D-2

Basic Company Information - Survey Database

RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS / SURVEY DATABASE

CON	PSIC NAME	ADDRESS	CITY	PR	PCDE	PHONE	RE	UML	LEA	DIE	PRO	FT	PT	4ERP.	OTHER SIC NUMBERS	PER POLK	PRINTOUT	10	TEL	MC	HI	WA	HP	CONTACT PERSON					
72	219 5541 PENGUIN PETROLEUM PRODUCTS LTD.	R. R. 42	SHANTY BAY	ONT.L0L	ZLO	705 722 4550	4	50	25	15	10	2	1	7500	0	0	0	0	0	0	0	2	2	BILL GRANTHAM					
73	220 1538 NEEDLE'S SERVICE CENTRE	ALCONA BEACH	STROUD	ONT.L0L	ZHO	705 436 5424	5	67	33	0	0	5	2	7549	5341	7500	7544	7546	0	0	0	0	1	3	2	2	ALEX		
74	221 1533 WASAGA BEACH AUTO BODY	458 HMT. 892	WASAGA BEACH	ONT.L0L	ZHO	705 479 2101	5	50	50	0	0	0	0	2	7500	9995	0	0	0	0	0	0	0	1	1	2	2		
75	222 1512 MIEDER'S MOTOR SALES LTD.(JUNDET)	169 VICTORIA M.	ALLISTON	ONT.L0M	IAO	705 435 4750	4	0	0	0	0	0	15	2	7513	0	0	0	0	0	0	0	0	1	1	2	2		
76	229 5511 STEWART CHEVROLET OLDSMOBILE	HMT 950	BOLTON	ONT.L0P	IAO	416 857 1030	5	0	0	0	0	0	24	0	5521	7538	5513	7512	7513	5531	7535	7500	7537	1	2	1	2	S. NIEBERN	
77	230 7538 CALEDON AUTO REPAIR SERVICE	130 HEALY	BOLTON	ONT.L0P	IAO	416 857 1912	3	0	0	0	0	0	1	0	7500	0	0	0	0	0	0	0	0	1	1	1	2	JOHN	
78	231 5521 NUMBERS 50 AUTO SALES LTD.	HMT 650	BOLTON	ONT.L0P	IAO	416 857 4040	5	0	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	1	1	1	2	NIGEL ATKINSON	
79	234 3713 FRANK AUTO REF. & CUST.	R. R. 61	GRIMSBY	ONT.L0R	IAO	416 945 2143	6	0	0	0	0	0	1	1	7535	7500	0	0	0	0	0	0	0	1	2	2	2	CARLINE MALLOTT	
81	240 7538 HALL'S AUTO REPAIR	R. R. 85	FENWICK	ONT.L0S	ICD	416 892 3641	4	0	0	0	0	0	1	0	7500	0	0	0	0	0	0	0	0	1	1	2	2	FRANK TROJANER	
83	250 7542 AUTO MAGIC WASH	116 BOND ST.	OSHWANA	ONT.L16	IA2	416 725 0322	5	0	0	0	0	0	8	5	7500	0	0	0	0	0	0	0	0	1	1	1	2	BANDY DESS	
84	250 7538 TOMLIN AUTO SERVICE	96 RUSSETT ST.	OSHWANA	ONT.L16	3R5	416 723 3111	6	0	0	0	0	0	3	0	7500	7537	7546	7536	7544	5506	0	0	0	0	1	1	2	LORRAINE DEVOLIN	
86	271 7535 BUIT AUTO BODY LTD.	86 RUSSETT AVE.	OSHWANA	ONT.L16	3R5	416 723 3111	6	0	0	0	0	0	3	0	7500	7537	7546	7536	7544	5506	0	0	0	0	1	1	2		
87	240 7538 JOHN'S GARAGE AUTO TRANSMISSION	222 KING ST. W.	OSHWANA	ONT.L16	3R5	416 723 3111	6	0	0	0	0	0	12	0	7500	7552	3713	0	0	0	0	0	0	1	1	2	2	JOHN MORISSATT	
88	263 5539 KING'S SNOWMOBILE & SMALL ENGINE	TOMLIN M.	OSHWANA	ONT.L1K	IA7	416 728 0533	4	0	0	0	0	0	2	3637	0	0	0	0	0	0	0	0	0	0	0	2	2	FRED KING	
89	264 5541 SUNT'S GAS BAR	400 DUNDAS ST. E.	WAT18Y	ONT.L1W	2J3	416 648 9761	5	33	67	0	0	0	1	2	7500	0	0	0	0	0	0	0	0	1	1	2	2	IK KIM	
93	278 4512 MIAGARA HELICOPTERS LTD.	3231 VICTORIA ST.	MIAGARA FALLS	ONT.L2E	482	416 357 5672	4	0	0	0	0	0	5	15	4118	0	0	0	0	0	0	0	0	0	0	1	2	PA. HAFEN	
94	279 5541 GAS & BATH TWO AUTO WASH	DORCHESTER RD.	MIAGARA FALLS	ONT.L2E	5A4	416 354 9143	5	65	35	0	0	0	4	3	7542	7500	0	0	0	0	0	0	0	1	0	2	2	BILL COLEY	
95	280 7538 COVELL SERVICE STATION	R. R. 84	MIAGARA FALLS	ONT.L2E	650	416 262 4833	5	60	40	0	0	0	2	0	7500	7538	5521	0	0	0	0	0	0	1	1	1	2	JERRY	
98	290 7538 FIRESTONE WESTLAKE TIRE CENTRE	365 LAKE ST.	ST. CATHERINES	ONT.L2W	4H5	416 646 1500	5	0	0	0	0	0	4	1	7500	7541	5512	7544	7544	7546	0	0	0	1	1	1	2	DAVE T.	
99	290 5511 PERFORMANCE CARS LTD.	262 LAKE ST.	ST. CATHERINES	ONT.L2W	4H1	416 834 3356	5	0	0	0	0	0	58	4	7538	5013	5531	7500	5521	0	0	0	0	1	1	1	2	FRANK/BARRY	
100	293 7536 MUSTER TRANSMISSION	152 HARTTEL RD.	ST. CATHERINES	ONT.L2P	IP9	416 682 1990	5	0	0	0	0	0	3	1	7518	5531	7500	7549	0	0	0	0	0	1	1	2	2	STEVE MOSS	
101	295 5541 CHAMPION GAS BAR	415 HEARIT ST.	ST. CATHERINES	ONT.L2P	IP2	416 685 0005	4	70	31	0	0	0	1	3	7500	0	0	0	0	0	0	0	0	1	1	2	2	C. FOSTER	
102	298 5521 PHILLIPS MOTORS	49 GEMEA ST.	ST. CATHERINES	ONT.L2R	4H6	416 682 2213	5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2	2		
103	300 7538 MASKIN'S AUTO REPAIR	9 PERMA CRT.	ST. CATHERINES	ONT.L2R	7K8	416 682 2324	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	2		
104	301 7535 ST. CATHERINES AUTO BODIES LTD.	207 ST. PAUL ST. W.	ST. CATHERINES	ONT.L2S	2C1	416 682 8385	5	0	0	0	0	0	7	0	7538	7500	7541	0	0	0	0	0	0	1	1	2	2	PAUL MASKINS	
105	309 7539 REDI RAD WELAND	947 MIAGARA ST.	WELAND	ONT.L3C	IM5	416 735 3760	5	0	0	0	0	0	5	2	7500	0	0	0	0	0	0	0	0	1	1	2	2	LORNE	
106	309 5541 LUKE'S GARAGE	601 SOUTH PELHAM	WELAND	ONT.L3C	3C7	416 734 7469	5	100	0	0	0	0	1	1	5541	7500	0	0	0	0	0	0	0	1	1	2	2		
107	310 7542 RIVERSIDE SELF SERV CAR WASH	138 RIVERSIDE DR.	WELAND	ONT.L3C	3E2	416 788 0036	5	0	0	0	0	0	1	1	7500	0	0	0	0	0	0	0	0	1	1	2	2	ROB BROON	
108	310 7538 RICKS GULF SERVICE	437 THOROLD RD.	WELAND	ONT.L3C	3A4	416 735 9314	4	75	25	0	0	0	3	2	5541	7500	7544	5506	7549	0	0	0	0	1	1	2	2	RICHARD KAMMEKE	
111	319 7538 CARQUARTERS AUTO REPAIR	7010 WOODBINE ST.	MARKHAM	ONT.L3R	IA2	416 479 1496	4	0	0	0	0	0	2	1	7500	7544	5506	5591	0	0	0	0	0	1	1	2	2	RICHARD KAMMEKE	
112	324 5541 MAGRATH SHELL	8510 WOODBINE	MARKHAM	ONT.L3R	IA2	416 477 8556	5	75	20	5	0	0	7	5	7500	0	0	0	0	0	0	0	0	1	1	2	2	DOM KIMNESS	
113	330 7538 GALLIVAN'S TIETO STATION	RAPA RD.	ORILLIA	ONT.L3V	IC2	705 325 3919	4	50	50	0	0	0	4	1	5541	7544	7541	5512	7549	7500	0	0	0	1	1	2	2	JIM SMITH	
114	331 7535 T & VEE AUTO BODY	120 POWLEY ST.	ORILLIA	ONT.L3V	276	416 326 8224	5	0	0	0	0	0	1	1	7500	0	0	0	0	0	0	0	0	1	1	2	2	MR. BLOCK	
117	341 7538 HUNTLEY & RALPH INC. (ROB'S TIRE)	371 YONGE ST.	NEWARKET	ONT.L3Y	5Y1	416 898 5115	4	0	0	0	0	0	5	1	7500	0	0	0	0	0	0	0	0	1	1	2	2	MR. RALPH	
119	348 7512 RENT A WRECK	82 YONGE ST. S.	AURORA	ONT.L46	IM2	416 773 6361	5	0	0	0	0	0	2	0	7517	0	0	0	0	0	0	0	0	1	1	2	2	BILL BUTZELL	
121	351 5511 ROY FOSSE MOTORS LTD.	7200 YONGE ST.	THORNHILL	ONT.L4J	IV8	416 886 2000	4	0	0	0	0	0	44	0	5521	7538	5531	5513	7500	7512	7515	5002	7537	0	0	1	1	RAY LEVO	
122	356 5541 PETRO CANADA	1487 HMT. 47 W.	CONCORD	ONT.L4K	IV0	416 669 2060	5	75	25	0	0	0	4	4	7500	4211	4200	0	0	0	0	0	0	1	1	2	2		
123	359 3594 CAMPOBASSO MOTORS INC.	109 FERNSTAFF RT 42	CONCORD	ONT.L4K	2V7	416 738 3783	5	0	0	0	0	0	2	0	7538	7500	5509	7533	7544	7537	0	0	0	1	1	2	2		
124	360 7538 S & P AUTO REPAIR LTD.	R. R. 81	WOODBRIDGE	ONT.L4L	IV5	416 831 5116	5	0	0	0	0	0	1	1	7500	0	0	0	0	0	0	0	0	1	1	2	2		
126	364 4669 SPORT HAVEN MARINA	SHANTY BAY RD.	BARRIE	ONT.L4M	IC6	705 726 1001	5	0	0	0	0	0	2	0	5559	5532	5942	5551	0	0	0	0	0	1	1	2	2	MONTIE	
128	365 5539 COLLINS SUZUKI	436 BLAKE ST.	BARRIE	ONT.L4M	IL3	705 728 8872	4	0	0	0	0	0	1	1	5571	3637	0	0	0	0	0	0	0	0	1	1	2	2	GARY COLLINS
129	369 5541 TOP VALUE GAS MARKS	165 WELLINGTON ST. W. BARRIE	BARRIE	ONT.L4M	IL1	705 722 3700	5	70	30	0	0	0	1	2	7500	0	0	0	0	0	0	0	0	1	1	2	2	SEAN BALL	
130	370 7538 ABRAMS SERVICE	131 BROCK ST.	BARRIE	ONT.L4M	2M3	705 737 4822	3	0	0	0	0	0	0	6	5541	7500	0	0	0	0	0	0	0	1	1	1	2	PAUL ABRAMS	
131	376 7512 BUDGET RENT A CAR	725 VINOLIN ST.	MIDLAND	ONT.L4R	IK8	705 526 8782	4	0	0	0	0	0	6	0	7513	4112	0	0	0	0	0	0	0	0	0	2	2	M.G. HANLEY	
133	380 7538 FRANK'S GARAGE	6379 AIRPORT RD.	MISSISSAUGA	ONT.L4V	IE4	416 677 5061	6	0	0	0	0	0	1	1	7500	0	0	0	0	0	0	0	0	1	1	2	2	FRANK F.	
137	397 5521 HERB'S CAR CARE	3211 WOLFEDALE	MISSISSAUGA	ONT.L5C	IV8	416 277 4634	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	2		
138	399 5521 J & J CUSTOM CYCLE	1171 LAKESHORE RD.E.	MISSISSAUGA	ONT.L5E	161	416 274 2702	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2	2	JERRY MALL	
139	399 5541 BEAVER SERVICE CENTRE	1459 LAKESHORE RD.E.	MISSISSAUGA	ONT.L5E	168	416 278 4830	5	70	30	0	0	0	1	4	7500	0	0	0	0	0	0	0	0	1	1	2	2	REANNA TAPSCOTT	
140	400 7538 RUFFO BROS. CAR CARE LTD.	526 S. SERVICE RD.	MISSISSAUGA	ONT.L5E	256	416 271 5844	5	0	0	0	0	0	3	0	7500	0	0	0	0	0	0	0	0	1	1	2	2	PAT RUFFO	
141	416 5441 CT GAS BAR LTD.	1337 DUNDAS W. ARI	OKVILLE	ONT.L6J	412	416 827 1038	3	60	40	0	0	0	1	1	7500	0	0	0	0	0	0	0	0	1	1	2	2		
145	470 7538 MILY'S AUTO JEWELL	447 SPEER S. RD. B5	OKVILLE	ONT.L6K	357	416 842 4364	6	0	0	0	0	0	4	0	7500	7544	7533	7546	0	0	0	0	0	1	1	2	2	RICE	
146	421 7535 ACTION COLLISION SERVICE	1079 SPEER ST.	OKVILLE	ONT.L6L	275	416 844 7566	4	0	0	0	0	0	1	0	7500	7538	0	0	0	0	0	0	0	0	1	1	2	2	MIAMI BUSSELL
147	428 7512 AVIS RENT A CAR	300 QUEEN ST. E.	BRANTON	ONT.L6V	IC2	416 451 2445	5	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	2	2	DAVID CURS	

RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS/ SURVEY DATABASE

[illegible]

RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS/ SURVEY DATABASE

CDN	PSIC NAME	ADDRESS	CITY	PR	PCDE	PHONE	FUEL SALES BROW										OTHER SIC NUMBERS PER POLK PRINTOUT										10	TEL	MC	HI	WA	WP	CONTACT PERSON																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
							RE	UNL	LEA	DIE	PRO	FT	PT	2	3	4	5	6	7	8	9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
724	631 5341 ULTRAMAR	2298 DUNDAS ST. W.	TORONTO	ONT.	MAR	113 416 533 1736	4	50	0	0	2	1	7500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix D-3

Basic Company Information - Unused and
Non-Responding Service Stations

[illegible][illegible]

Appendix E

E-1 Coding Description

E-2 Waste Characteristics for Survey Database

Appendix E-1
Coding Description

CODING DESCRIPTIONS FOR THE RETAIL SERVICE STATIONS / WASTE FILE

COW	P60	PSIC	ID.	QTYREP	UT	DM	QTYSTO	UT	BM	NATURE OF BUSINESS RESPONSES																				WASTE HAULER NAME	REGION
										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
										1--> BRAND NAME																					
										0.None																					
										1.Varsol																					
										2.Esso																					
										3.Safety Kleen																					
										1--> WASTE UNITS(see below)																					
										1--> WASTE QUANTITY STORED																					
										By questionnaire/telephone/onsite visit																					
										1--> WASTE DISPOSAL METHOD																					
										1.By waste hauler																					
										2.Reused (including recollection)																					
										3.Incinerated onsite																					
										4.Scrap dealer																					
										5.Evaporation																					
										6.Landfill or sewers																					
										1--> WASTE UNITS																					
										16 Imperial gallons																					
										Ea Each																					
										Lbs Pounds																					
										1--> WASTE QUANTITY REPORTED																					
										By questionnaire/telephone/field visit																					
										1--> WASTE IDENTIFICATION																					
										0.No waste																					
										1.Waste oil																					
										2.Interceptor waste oil/water/sludge																					
										3.Gasoline storage tank bottoms																					
										4.Coolant from radiators																					
										5.Used Batteries																					
										6.Paint sludge/Paint over-spray filters																					
										7.Non-halogenated cleaners, thinners and solvents																					
										8.Caustic agents																					
										9.Halogenated cleaners																					

1--> INDUSTRIAL NATURE OF BUSINESS RESPONSE

1--> WASTE HAULER IDENTIFICATION

Appendix E-2

Waste Characteristics for Survey Database

NATURE OF BUSINESS RESPONSES

[illegible]

RETAIL SERVICE STATION SURVEY/WASTE FILE

NATURE OF BUSINESS RESPONSES

[illegible]

RETAIL SERVICE STATION SURVEY/WASTE FILE

NATURE OF BUSINESS RESPONSES

[illegible]

RETAIL SERVICE STATION SURVEY/WASTE FILE

NATURE OF BUSINESS RESPONSES																																								
CDI	PGI	PSIC	ID	QTY	REP	UT	DM	QTY	STD	UT	DM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOT	WASTE HAULER NAME	REGION			
133	380	7538	7	87	16	1	10	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	L			
133	380	7538	5	75	16	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L		
137	397	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L		
138	399	5571	7	5	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L		
138	399	5571	1	36	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
139	399	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
140	400	7538	5	74	EA	4	2	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
140	400	7538	1	120	16	1	100	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
143	416	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
145	420	7538	1	120	16	1	200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
145	420	7538	7	30	16	1	0	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
145	420	7538	5	24	EA	4	0	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
146	421	7535	7	180	16	1	15	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
147	428	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
148	428	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
149	430	7538	7	85	16	1	10	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
149	430	7538	1	1500	16	1	500	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
149	430	7538	5	60	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
150	430	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
151	430	5926	5	1000	EA	4	100	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
153	442	5511	1	1500	16	1	125	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
153	442	5511	7	130	16	1	15	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
153	442	5511	5	144	EA	4	17	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
155	448	7538	1	250	16	1	200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
155	448	7538	7	120	16	1	20	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
155	448	7538	5	60	EA	4	5	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
157	454	7536	1	120	16	1	10	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
157	454	7536	1	200	16	1	200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
158	456	7539	8	100	16	1	45	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
158	456	7539	4	300	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
159	459	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
160	460	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
161	460	7538	5	120	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
161	460	7538	1	540	16	0	45	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
161	460	7538	7	24	16	0	24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
164	471	7538	1	96	16	1	700	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
166	487	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
167	490	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
168	495	7535	7	24	16	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
169	505	7538	1	6000	16	1	500	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
169	505	7538	5	240	EA	4	20	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
169	505	7538	7	270	16	1	45	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
171	507	4469	5	30	EA	4	30	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L
172	508	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
174	519	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
176	523	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	
177	525	7538																																						

RETAIL SERVICE STATION SURVEY/WASTE FILE

CDM	PG#	PSIC	IB-DITYREP	UT	DM	QTYSTD	UT	DM	NATURE OF BUSINESS RESPONSES																							TOT	WASTE HAULER NAME	REGION
									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
103	300	7538	7	2	16	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
103	300	7538	5	30	EA	4	5	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
103	300	7538	1	240	18	1	500	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 RALPH TAYLOR	L					
104	301	7535	7	48	16	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	L						
105	309	7539	4	200	16	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	L						
106	309	7539	4	200	16	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	L						
106	309	5541	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
107	310	7538	1	1000	16	1	500	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 JIM'S TRUCKING	L					
106	310	7542	2	2000	16	1	2000	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	L						
111	319	7538	7	50	16	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
111	319	7538	1	1000	16	1	1000	16	0	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	7	L					
111	319	7538	5	75	EA	4	20	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
112	324	5541	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
113	330	7538	1	700	16	3	350	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
113	330	7538	4	100	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
113	330	7538	5	10	EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
114	331	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	L						
117	341	7538	5	20	EA	4	50	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
117	341	7538	1	330	16	1	400	16	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	7 CAN-AM OIL	L					
119	348	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	L						
121	351	5511	7	720	16	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 SAFETY KLEEN	L					
121	351	5511	4	500	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
121	351	5511	7	2000	16	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 CAN-AM OIL	L					
121	351	5511	5	200	EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
121	351	5511	6	200	LB	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
121	351	5511	1	12000	16	1	1000	16	0	0	1	0	1	1	1	1	1	1	0	0	0	0	0	1	0	1	1	0	12 CAN-AM OIL	L				
122	356	5541	7	180	16	1	15	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 CAN-AM OIL	L					
122	356	5541	1	100	16	0	300	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CAN-AM OIL	L					
122	356	5541	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
122	356	5541	5	100	EA	4	9	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
122	356	5541	4	96	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
123	359	3594	7	60	16	1	10	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 CAN-AM OIL	L					
123	359	3594	5	24	EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
123	359	3594	1	600	16	1	200	16	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2 CAN-AM OIL	L					
124	360	7538	1	100	16	1	300	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CAN-AM OIL	L					
124	360	7538	7	180	16	1	15	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 CAN-AM OIL	L					
124	360	7538	4	96	16	2	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
124	360	7538	5	100	EA	4	9	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
127	364	4469	5	1	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
127	364	4469	1	1	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
128	365	5559	1	130	16	0	130	16	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	L					
128	365	5559	5	50	EA	4	50	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L					
129	369	5541	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	L					
130	370	7538	5	120	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
130	370	7538	4	600	16	6	50	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L						
130	370	7538	1	600	16	1	200	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CANADIAN-DIL	L					
130	370	7538	7	60	16	1	5	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 CANADIAN-DIL	L					
131	376	7512	7	100	16	1	10	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 SAFETY KLEEN	L					
131	376	7512	1	400	16	1	100	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	L				
131	376	7512	5	25	EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L					
131	376	7512	7	50	16	0	50	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L					
133	380	7538	1	520	16	1	200	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CAN-AM OIL	L				
133	380	7538	4	120	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L					

RETAIL SERVICE STATION SURVEY/WASTE FILE

[illegible]

RETAIL SERVICE STATION SURVEY/WASTE FILE

[illegible]

NATURE OF BUSINESS RESPONSES

[illegible]

RETAIL SERVICE STATION SURVEY/WASTE FILE

[illegible]

RETAIL SERVICE STATION SURVEY/WASTE FILE

NATURE OF BUSINESS RESPONSES

CDM	PGI	PSIC	ID	DTY	UT	DM	DTYST	UT	DM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOT	WASTE HAULER NAME	REGION			
286	823	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N			
287	0	7539	4	1300	16	6	0	16	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	N			
287	0	7539	8	70	16	6	70	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N			
288	826	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	3	0	N			
289	826	5521	1	400	16	1	250	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	3	CAN-AM OIL	N			
292	827	5541	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	N			
293	828	3594	1	60	16	1	200	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	CAN-AM OIL	N		
293	828	3594	7	40	16	1	40	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
293	828	3594	4	24	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
294	0	7539	9	300	16	0	300	16	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
294	0	7539	4	660	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
294	0	7539	2	30	16	6	0	16	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	N		
295	829	7538	1	900	16	1	1000	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N		
295	829	7538	1	480	16	1	500	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N		
295	829	7538	4	50	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
295	829	7538	5	100	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
295	829	7538	2	10	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
295	829	7538	5	25	EA	4	4	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
296	829	7538	1	900	16	1	1000	16	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	CAN-AM OIL	N		
296	829	7538	5	100	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
296	829	7538	2	10	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
297	829	7536	7	200	16	1	200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
297	829	7536	7	87	16	1	10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
297	829	7536	2	400	16	1	400	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
297	829	7536	1	1320	16	1	500	16	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N	
298	829	5926	5	300	EA	4	30	EA	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	J'S BATTERIES	N	
299	829	5511	4	250	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
299	829	5511	1	350	16	1	500	16	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	CAN-AM OIL	N		
299	829	5511	5	75	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
299	829	5511	7	25	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	5	75	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	5	200	EA	4	20	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	1	10000	16	1	2500	16	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	CAN-AM OIL	N		
300	829	5511	4	500	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	4	250	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	7	25	16	6	0	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	1	350	16	1	500	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N	
301	830	7535	6	10	16	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	N		
302	830	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
302	830	5559	7	87	16	1	10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
302	830	5559	5	10	EA	2	1	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
302	830	5559	1	5	16	2	5	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
303	830	5521	1	1200	16	1	400	16	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	SAFETY KLEEN	N		
303	830	5521	5	100	EA	4	20	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
303	830	5521	7	87	16	1	10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
304	831	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	N		
305	831	5571	1	2	16	2	2	16	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	N		
306	831	5559	5	10	EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
306	831	5559	7	30	16	1	5	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
306	831	5559	1	400	16	0	200	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N		
30																																						

Appendix F

F-1 Coding Description

F-2 Database Waste Hauler Information Database

Appendix F-1
Coding Description

[illegible]

!-> Arbitrarily set HAULER NUMBER

Appendix F-2

Waste Hauler Information Database

DATABASE OF WASTE HAULER INFORMATION

No.	HAULER'S NAME	ADDRESS	PHONE #	REGIONS SERVED K,L,M,N,or P	WASTE TYPE(S) HAULED
1	COHEN & COHEN	1963 MERIVALE RD. NEPEAN	(613) 225-9111	K	5
2	FORT BATTERY SERVICE	222 MONTREAL ST. KINGSTON	(613) 544-0031	K	5
3	LACOMBE WASTE OILS	5687 POWER RD. OTTAWA	(613) 733-3349	K	1,4
4	BUCKMAN TRANSPORT	P.O.BOX 601 PETERBOROUGH K9J 6Z8	(705) 939-6311 or (416) 686-3624	L	2
5	CLAUDE HARNESS	R.R.#1 NEWTONVILLE	(416) 786-2552	L	1
6	GRW. LTD.	serves Oshawa		L	7
7	JIM'S TRUCKING	580 RIDGE ST. WELLAND	(416) 734-9422	L	1
8	JOHN KNOX PUMPING	serves Nobleton		L	7
9	JORDAN WHOLESALE FLORISTS	R.R.#1 VINELAND STATION, VINELAND	(416) 562-7313	L	1
10	RALPH TAYLOR	serves St. Catharines		L	1
11	PASSOW	serves Bolton		L	4
12	WOODINGTON SYSTEMS	2233 STANLEY ST. THOROLD L2V 3Y8	(416) 262-4227	L	1
13	CANADIAN OIL	309 CHERRY ST. TORONTO M5A 3L3	(416) 461-7511	L,M,N	1,2,4,7
14	ABBA WASTE OIL SERVICE	13 SHAMROCK AVE. ETOBICOKE	(416) 259-1822	M	1
15	COMMERCIAL OIL	serves Toronto		M	1
16	BRAD'S CAR OILING	serves Chepstow, Hanover		N	1
17	FAM OIL LTD.	R.R.#2 CALEDONIA	(416) 765-2985	N	1
18	J's BATTERIES	serves Waterloo		N	5
19	PALRO LIQUID WASTE REMOVAL LTD.	P.O.BOX 1477 BRANTFORD N3T 5V6	(519) 756-9200 or (416) 281-3585	N	2
20	PEERLESS	serves Stratford		N	1
21	A1 SEWAGE	R.R.#5 HWY #17 THUNDER BAY	(705) 939-2712	P	1
22	KEITH THOMPSON	1494 SOUTHVIEW DR. SUDBURY	(705) 522-2900	P	1,2
23	NORTHERN SANITATION	1024 CARMEN DR. SUDBURY	(705) 566-1042	P	-B
24	NORTHSTAR PUMPING	407 WILSON AVE. TIMMINS	(705) 264-0147	P	4
25	WELLWOOD	134 RANKIN AVE. SAULT STE. MARIE	(705) 253-5352	P	1
26	CAN-AM OILS SERVICES	P.O.BOX 130 BRESLAU N0B 1M0	(519) 648-2291 or (416) 461-6354	ALL	1,2,4,7,8
27	SAFETY KLEEN (Head office)	1100 SHERBROOKE, SUITE 2205, MONTREAL, P.Q., H3A 1G9		ALL	1,7

APPENDIX G

DEVELOPMENT OF POPULATION
ESTIMATES

APPENDIX G

Development of Population Estimates

The population estimates for extrapolation were developed using the following methodology:

- (i) The secondary SIC codes were counted for each primary SIC category for all service stations contacted during the survey (These secondary SIC codes were assumed to represent the duplicity in the Polk counts for each SIC category).
- (ii) The number of secondary SIC codes in the sample population were extrapolated to the provincial population.
- (iii) The number of secondary SIC codes was subtracted from the count for each SIC category provided by R.L. Polk to obtain a revised count (excluding overlaps).
- (iv) The revised counts were corrected to produce Population Estimate A in which the total estimated population equals the total actual population of 17,590 reported by Polk.

Note: a) SIC codes where no overlap occurred were not corrected
b) If corrected population values exceeded the original provincial counts (from Polk), they were set equal to the provincial count (see SIC 5541)

- (v) Population Estimate B was calculated similarly to A but the total estimated population was assumed to equal the total actual population of 17,590 minus 13.37% due to incorrect addresses in the Polk listing (see Section 2.3) for discussion). The total population for the B estimate was 15,239.

The data generated in developing population estimates and the actual population estimates are documented in Table G-1.

TABLE 0-1 DEVELOPMENT OF POPULATION ESTIMATES FOR EITRAPOLATIONS

SIC	PRIMARY APPROX. SURVEY	OVERLAPPING SIC'S - TYPE AND NUMBER																Total Overlapping Population
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
COUNTS (Polk)	ONTARIO CONTACTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Overlapping Population
		1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	1848	
7542	825	10	2	165	3	248	0	0	1	83	0	0	1	83	0	0	0	0
7539	655	9	3	218	0	0	0	0	1	73	1	73	0	0	0	0	0	0
7538	9100	119	0	0	38	2906	0	0	2	133	3	229	2	133	0	0	2	133
7536	735	10	6	441	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7535	3250	43	11	831	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7512	2175	26	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7526	215	7	2	61	1	31	0	0	0	0	0	0	0	0	0	0	0	0
5571	390	6	0	0	1	65	0	0	0	0	0	0	0	0	0	0	0	0
5559	485	7	1	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5541	5385	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5521	2825	37	8	611	1	76	0	0	1	76	2	133	1	76	0	0	0	0
5511	1395	18	18	1395	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4512	25	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4469	545	6	1	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3713	110	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3594	215	6	3	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	28520	382	56	4064	44	3325	0	0	4	312	8	569	8	559	2	159	24	1855
Revised Counts (Encl. Overlaps)		3036	1	2260	1	215	1	343	1	166	1	2691	1	1226	1	970	1	182
Population Estimate A		5671	1	2344	1	215	1	386	1	187	1	3030	1	1380	1	1092	1	205
Population Estimate B		4912	1	2204	1	186	1	335	1	162	1	2625	1	1196	1	946	1	178

0 No multiplier required as no overlap present

1 Represents establishments contacted/attempted to contact, excluding on site visits

2 Total Overlapping Population

3 Revised Counts calculated by subtracting overlapping counts from approximate Ontario counts

4 Multiplier used for Population Estimate A calculated by Population Estimate A - (SIC's 5926+3594+4469+4512+3713) / Revised Count Population - (SIC's 5926+3594+4469+4512+3713) = Total Population (Polk)

5 Population Estimate B calculated by Total Population (Polk) minus 13.37% to account for incorrect addresses

Appendix H
Chemical Analysis



CANVIRO
Analytical Laboratories Ltd.

TABLE 1: SUMMARY OF SERVICE STATION SAMPLE RESULTS

IDENTIFICATION	RAD. SHOP CAUSTIC	ENGINE SHOP CAUSTIC	ENGINE SHOP CAUSTIC SLUDGE	USED ETHYLENE GLYCOL
CANVIRO IDENTIFICATION NO.	0258-01	0258-02	0258-03	0258-04
C.	CONCENTRATION			
	mg/L	mg/L	mg/L	mg/L
ALUMINUM (Al)	56.9	59.3	392	7.08
IRON (Fe)	1.83	265	3620	11.1
CALCIUM (Ca)	4.49	320	3870	2.25
MAGNESIUM (Mg)	0.47	134	1410	0.70
SODIUM (Na)	*	*	*	*
POTASSIUM (K)	1560	224	232	1170
TITANIUM (Ti)	0.042	0.86	6.73	<0.06
MANGANESE (Mn)	0.050	7.18	68.2	0.11
PHOSPHORUS (P)	224.6	72.0	312.3	308.7
BARIUM (Ba)	0.059	8.35	1.92	0.027
CHROMIUM (Cr)	1.80	11.6	53.3	<0.30
COPPER (Cu)	60.8	32.4	231	2.66
NICKEL (Ni)	<0.25	0.70	11.6	<0.25
LEAD (Pb)	235	291	1150	27.4
ZINC (Zn)	16.9	49.1	332	1.63
VANADIUM (V)	<0.10	0.18	0.57	<0.10
STRONTIUM (Sr)	0.020	1.17	11.3	0.020
COBALT (Co)	<0.20	<0.20	2.52	<0.20
MOLYBDENUM (Mo)	38.3	6.87	11.7	2.50
SILVER (Ag)	<0.3	<0.3	<0.3	<0.3
CADMIUM (Cd)	<0.25	0.42	5.32	<0.25
BERYLLIUM (Be)	<0.03	<0.03	<0.03	<0.03
SILICON (Si)	25.8	134.0	74.7	32.2
BORON (B)	261	14.5	17.9	1310

* Interference preventing analysis

RESPECTFULLY YOURS

Douglas McCallum
DOUGLAS MCCALLUM



CANVIRO
Analytical Laboratories Ltd.

TABLE 1: SUMMARY OF SERVICE STATION SAMPLE RESULTS

IDENTIFICATION	BATTERY ACID PH 0.05	BATTERY LEAD LEACHATE	CAUSTIC SLUDGE LEACHATE	NEW ETHYLENE GLYCOL
CANVIRO IDENTIFICATION NO.	0263-01	0263-02	0263-03	0263-04
TOTAL SOLIDS %	NA	96.4	51.9	NA
	CONCENTRATION			
	mg/L	mg/L	mg/L	mg/L
ALUMINUM (Al)	18.6	<0.15	<0.15	4.36
IRON (Fe)	14.0	<0.030	<0.045	5.19
CALCIUM (Ca)	28.1	1.55	9.61	1.92
MAGNESIUM (Mg)	30.4	0.70	9.89	0.24
SODIUM (Na)	288	2.33	4170	5280
POTASSIUM (K)	0.40	0.12	156	950
TITANIUM (Ti)	<0.0006	<0.0006	<0.0006	0.049
MANGANESE (Mn)	0.016	<0.003	0.63	0.047
PHOSPHORUS (P)	0.13	<0.13	4.86	440.1
BARIUM (Ba)	<0.001	0.033	0.78	0.054
CHROMIUM (Cr)	0.12	<0.03	<0.03	<0.03
COPPER (Cu)	0.26	<0.015	75.6	0.12
NICKEL (Ni)	0.064	<0.025	0.045	<0.025
LEAD (Pb)	2.25	30.3	11.7	<0.08
ZINC (Zn)	0.86	0.076	31.1	<0.015
VANADIUM (V)	<0.01	<0.01	<0.01	<0.01
STRONTIUM (Sr)	0.002	0.004	0.16	0.037
COBALT (Co)	<0.02	<0.02	<0.02	<0.02
MOLYBDENUM (Mo)	<0.04	<0.04	0.83	4.30
SILVER (Ag)	0.008	<0.03	<0.03	<0.03
CADMIUM (Cd)	0.082	<0.025	0.049	<0.025
BERYLLIUM (Be)	<0.003	<0.003	<0.003	<0.003
SILICON (Si)	6.2	3.98	52.8	137.8
BORON (B)	0.20	0.025	19.7	1430
ARSENIC (As)	<0.30	<0.30	<0.30	<0.30

RESPECTFULLY YOURS

Douglas McCallum
DOUGLAS MCCALLUM

APPENDIX I

SIC AND WASTE TYPE
REFERENCE PAGE

APPENDIX I

Standard Industrial Code (SIC)	Description
7542	Car Washing & Polishing
7539	Radiators Automotive
7538	Automobile Repairing & Service
7536	Transmission Automotive
7535	Automobile Repairing & Painting
7512	Automobile Renting & Leasing
5926	Batteries Storage Retail
5571	Motorcycle Dealers
5559	Snowmobiles
5541	Service Stations Gasoline
5521	Automobile Dealers Used
5511	Automobile Dealers New
4512	Helicopter Dealers
4469	Marine Motor Dealer
3713	Automobile Customizing
3594	Engines Rebuilding & Exchanging

Waste Type Category	Description
1	Waste Oils
2	Interceptor Wastes (Waste Oil/Sludge/Water)
3	Gasoline Storage Tank Bottoms
4	Coolant
5	Batteries
6	Paint Sludge/Filters
7	Non-Halogenated Cleaners, Thinners and Solvents
8	Caustic
9	Halogenated Cleaners

